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Weather

WEATHER SUPPORT PROCEDURES



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This instruction implements Air Force Policy Directive (AFPD) 15-1, *Atmospheric and Space Environmental Support*, Air Force Strategic Plan on Weather Reengineering; Air Force Instruction (AFI) 10-229, *Responding to Severe Weather Events*; AFI 15-114, *Functional Resource Weather Technical Performance Evaluation*, AFI 15-128 *Aerospace Weather Operations - Roles and Responsibilities*; Air Force Manual 15-111, *Surface Weather Observations*; AFMAN 15-124, *Meteorological Codes*; AFMAN 15-129, *Aerospace Weather Operations Processes and Procedures*; and AFMAN 15-135, *Combat Weather Team (CWT) Operations*. It provides general information for weather services, including weather observations and forecasts, weather warnings, watches, and advisories, dissemination of information, and reciprocal support. It applies to units assigned to the 437/315th Airlift Wings and subordinate units, and units assigned or attached to, or supported by, Charleston Air Force Base (Charleston AFB).

SUMMARY OF REVISIONS

This document is substantially revised and must be completely reviewed.

This revision incorporates the multiple changes brought about by the Air Force Weather Reengineering effort. These changes include, but are not limited to; weather advisory, watch, warning issuance/notification procedures; Terminal Aerodrome Forecast (TAF) dissemination time changes/periods; new transient aircrew briefing support procedures; and new local Weather Flight (WF) Mission Execution Forecast (MEF) procedures. It also outlines changes in local operating procedures and duty hours while explaining our working relationship with the 28th Operational Weather Squadron (OWS) located at Shaw AFB.

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Chapter 1

GENERAL INFORMATION

1.1. General .

1.1.1. The 437 OSS/OSW Combat Weather Team (CWT) is responsible for providing or arranging weather support for the 437th and 315th Airlift Wings, any NORAD F-16 Detachment deployed to Charleston AFB and all other Charleston AFB agencies. As part of the 437 OG, our mission is to help “get the stuff to the fight.” This instruction establishes weather support requirements and procedures outlined in Air Force directives and has been coordinated at the local level to meet mission needs. The terms Weather Flight (WF) and Combat Weather Team (CWT) can be used interchangeably and in this instruction they both refer to the 437 OSS/OSW.

1.1.2. Contacting the CWT: Weather personnel can be reached by phone at DSN 673-3016/3011 or commercial at (843) 963-3016/3011 and telefax by DSN 673-3012 or commercial (843) 963-3012. During non-duty hours, you may contact a member of the CWT through the 437 AW Command Post (CP) at DSN 673-2531/2533 or (843) 963-2531/2533.

1.1.3. References, abbreviations, acronyms, and terms used throughout this document are defined in [Attachment 1](#).

1.2. Concept of Operations (OWS-CWT Team Concept). The Air Force Strategic Plan on Weather Reengineering (8 Aug 97) and Air Force Instruction 15-128, *Aerospace Weather Operations-Roles and Responsibilities*, mandated several changes be made to improve operational weather support. Under reengineering, the world has been divided into ten centralized Areas of Responsibility (AORs). Each AOR has a designated Operational Weather Squadron (OWS) responsible for providing operational-level aerospace weather support to operational units assigned within and/or deployed into it's AOR. The Southeast United States AOR, including Charleston AFB, falls under the responsibility of the 28th OWS located at Shaw AFB. (See [Attachment 2](#) for 28 OWS AOR Map). As a result, the local 437 OSS/OSW CWT and 28th OWS now work in concert to provide weather information to all supported base agencies for use in operational/planning decisions and for the protection of government resources. The 28th OWS is ultimately responsible for issuing Terminal Aerodrome Forecasts (TAFs), weather warnings/watches and forecast weather advisories, while the CWT is now more focused on providing tailored customer support. This includes Flight Weather Briefing support, Mission Execution Forecasts (MEFs), Crisis Action Team (CAT) briefings, concept briefings, deployment briefings and other specialized weather support. The 28th OWS is also responsible for providing Flight Weather Briefings to transients during occasional CWT non-duty hours.

1.3. 28th OWS Roles and Responsibilities. The 28th OWS provides timely, accurate, and relevant weather information and products for Air Force and Army operations in the southeastern US AOR. They produce and disseminate weather watches, warnings, and advisories; TAFs; regional and operation-level weather products; and flight weather briefings for transient aircrews. The 28th OWS conducts a Meteorological Watch (METWATCH) within its AOR and amends when specified criteria are met. 28th OWS products are available on their website: <https://28ows.shaw.af.mil/>. These include the latest observed and forecast weather conditions, forecast weather watches, warnings and advisories, and transient flight

weather briefings. This suite of products is transmitted from the 28th OWS to the 437 OSS/OSW using the New Tactical Forecast System (NTFS).

1.3.1. 28 OWS DUTY PRIORITIES: In the event of task saturation, the 28 OWS prioritizes support tasks in accordance with [Table 1.1](#).

Table 1.1. 28 OWS Duty Priorities.

Order of Priority	Duties
1	Perform Emergency War Order (EWO) Taskings
2	Respond to Aircraft/Ground Emergencies
3	Respond to Immediate/Emergency Launch Operations (e.g. Dustoff/MEDEVAC)
4	Respond to Severe Weather (Weather Watches, Warnings and Advisories)
5	Respond to Pilot to Metro Service (PMSV)/Phone Patch Contacts
6	Disseminate Urgent (UUA) Pilot Reports (PIREPs)
7	Prepare and Disseminate TAFs
8	Prepare/Disseminate Regional and Operational-level Graphics and Alphanumeric Products
9	Prepare/Disseminate Tactical-Level (Mission Execution) Forecasts
10	Provide Scheduled Flight Weather Briefings
11	Provide Non-Scheduled Flight Weather Briefings
12	Disseminate Routine (UA) PIREPs
13	Provide Other Weather Products, Information and Weather Briefings
14	Accomplish Other Routine Weather Requirements
15	Accomplish Administrative Tasks

NOTE: OWS dissemination refers to weather information that is sent to base agencies on the New Tactical Forecast System (NTFS) or via telephone.

1.3.2. OWS dissemination procedures. The 28 OWS disseminates TAFs, weather watches, weather warnings, and advisories via the local New Tactical Forecast System (NTFS), using NIPERNET access and the Local Area Network (LAN). During NTFS, LAN or NIPERNET outages, the 28 OWS disseminates critical information via e-mail, FAX or phone. If the product being disseminated is a weather watch, warning, or advisory, the 28 OWS will also call the 437 AW Command Post to ensure product receipt. 437 AW Command Post will then notify other base agencies as outlined in [Attachment 4](#).

1.3.3. OWS back-up weather support procedures. When weather operations at 28 OWS are interrupted, (e.g. power outage, natural disaster, etc.), responsibility for local TAF, weather watch, warnings, and advisories will be transferred to 437 OSS/OSW until such time as 28 OWS is able to resume operations.

1.4. 437 OSS/OSW Roles and Responsibilities. The 437th Operations Support Squadron, Combat Weather Team (437 OSS/OSW) provides weather support to the 437th and 315th Airlift Wings, any NORAD F-16 Detachment deployed to Charleston AFB and all other Charleston AFB agencies. Weather support includes; Tailored Mission Execution Forecasts for IR, VR, air-refueling tracks, drop-zones, and landing zones; MISSIONWATCH functions; flight weather briefings; Crisis Action Team (CAT) briefings; aircrew and staff briefings; exercise/contingency support; deployment briefings; climatology briefings; and resource protection services for Charleston AFB. Weather products are tailored specifically to meet customer requirements. All supported units should coordinate with the 437 OSS/OSW to change this instruction or request special or additional support not addressed in this instruction.

1.4.1. Hours of Operation. 437 OSS/OSW has the following limited-duty hours as published in the FLIP; Monday through Friday, 0400L-2000L; weekends, 0600L-1600L; closed on holidays. However, two forecasters are on call 24/7/365 to meet 437th and 315th Airlift Wing mission requirements and to respond during severe weather. In addition, local forecasters will prepare all flight weather briefings for 437th and 315th Airlift Wing aircraft departing Charleston AFB, regardless of published duty hours. Forecasters use C2IPS to determine local departure times. The standby weather forecaster can be recalled through the 437 AW/CP (see para. 1.1.3.) On call response time to be at the local weather station is 30 minutes.

1.4.1.1. Resumption of 24-hour operations. The 437 OSS/OSW will resume 24-hour operations when:

1.4.1.1.1. Severe weather is forecast. See [Attachment 4](#) for weather watches, warnings and advisories that require the standby forecaster to be recalled.

1.4.1.1.2. Whenever tropical storm or hurricane sustained surface winds of 50 knots or greater are forecast to affect Charleston AFB

1.4.1.1.3. Whenever the 28 OWS suffers a communications outage and is no longer able to provide support for CAFB.

1.4.1.1.4. To support contingencies, real-world operations/training and major exercises.

1.4.1.1.5. When directed by Wing Commander, Operations Group Commander, or OSS Commander. (i.e. Crisis Action Team (CAT) support, when CAFB acts as a staging-base for operations, etc..)

1.4.2. 437 OSS/OSW Duty Priorities. Certain duties performed have a greater urgency than others. Therefore, forecasting services cannot always be provided on a first-come, first-served basis. In addition, we may be unable to quickly handle every request for weather service during adverse weather or heavy workloads. AFMAN 15-129, *Aerospace Weather Operations-Processes and Procedures*, requires the 437 OSS/OSW establish a duty priority list. Our list ensures tasks are performed according to their relative importance. (see [Table 1.2.](#)).

Table 1.2. 437 OSS/OSW Duty Priorities.

Priority	Duties
1	Perform Emergency War Order Taskings
2	Respond to Aircraft/Ground Emergencies.
3	Respond to Pilot-to-Metro Service (PMSV) contacts

Priority	Duties
4	Disseminate surface weather observations <i>locally</i> (during FAA equipment outages)
5	Issue observed weather warnings or advisories.
6	Perform Severe Weather Action Process (SWAP) procedures.
	Disseminate urgent pilot reports (PIREPs) and AIREPs.
7	Relay urgent pilot reports (PIREPs) and Special AIREPs to OWS.
8	Collaborate with OWS on forecast weather warnings, advisories, and watches. Disseminate if necessary.
9	Provide mission execution forecasts (MEFs)—Flight Weather Briefings, AMC Form 181s.
10	Provide “Eyes Forward” support and coordinated METWATCH support to OWS.
11	Transmit PIREPs / AIREPs long line.
12	Collaborate with OWS on installation TAF.
13	Provide other briefings.
14	Prepare and disseminate Web-based Planning Products and Mission Execution Forecasts.
15	Perform Operational Verification (OPVER) and MISSIONWATCH
16	Conduct mission essential training.
17	Administrative and other duties.

NOTE: Local dissemination refers to weather information that is sent to base agencies on the New Tactical Forecast System (NTFS) or via telephone in the event of a local LAN failure.

1.5. Local weather dissemination system. The New-Tactical Forecasting System (NTFS) is used to locally disseminate forecasts, watches, warnings, advisories and PIREPs to base customers via the Local Area Network (LAN), and the weather flight’s web page:

<http://globemaster/437og/weather/index.html>. Click on the “CAFB Weather” link located at the top of the left hand column to display NTFS data. Due to limited staffing and the time-critical nature of this information, 437 OSS/OSW cannot individually notify every agency requesting information. Critical information is disseminated to the Command Post and Base Operations. These two agencies then notify all other agencies on base requiring the information. In the event of a LAN failure, the 437 OSS/OSW will notify Command Post and Base Operations of critical information via telephone. These two agencies will in turn notify all other required agencies.

1.6. Operational Support Requirements.

1.6.1. Supported agencies will:

1.6.1.1. Establish and coordinate all weather support requirements and procedures with 437 OSS/OSW.

1.6.1.2. Notify the 437 OSS/OSW 48 hours in advance of any known mass briefing to support mission requirements.

1.6.1.3. Notify 437 OSS/OSW of any additions or changes to weather support requirements. This should be done with sufficient advance notice (normally 10 working days) to preclude adverse impact on CWT operations.

1.6.1.4. Coordinate with the 437 OSS/OSW for any required weather training.

1.6.1.5. Use the LAN to access weather data on the 437 OSS/OSW weather web page at the following link: <http://globemaster/437og/weather/index.html>. Once there, use the menu column on the left to display data. Data provided for Charleston AFB includes current observations, local TAF, local Mission Execution Forecasts for North Field and locally owned Air Refueling tracks (if scheduled for use on AOD), 3-day AOD planning forecasts, weather warnings, watches and advisories, solar/lunar illumination data, satellite loops, etc. Weather personnel will normally step callers through how to access this data on the LAN unless the caller doesn't have LAN access. A detailed overview of weather products available on the 437 OSS/OSW weather flight web page is available upon request.

1.6.2. Unit commanders will:

1.6.2.1. Ensure they are kept informed of critical weather elements affecting their operations. This is accomplished by dissemination of weather information through established communication procedures as outlined in **Chapter 5** and **Attachment 4** in this instruction.

1.6.2.2. Ensure procedures are established within their organization to adequately respond to disseminated weather information.

1.6.2.3. Review this instruction at least annually for any changes in support requirements. Coordinate these changes with 437 OSS/OSW.

1.7. Alternate Weather Operations Site. If an evacuation of the primary weather station (Bldg 169, room 130) becomes necessary, operations will be reestablished at the alternate location, the 437 OSS Conference Room, bldg 1600, room 206. Minimum requirements for the alternate site are availability of power, a Class A telephone, easy access to the outside of the building, access to a fax machine, and one LAN drop.

1.8. Back-up Weather Support Procedures. If the local weather flight is unable to provide required weather support for any reason, the 28 OWS at Shaw AFB will provide weather support until local operations are resumed. The 28 OWS will provide back-up support according to the following three tiers of mission support outlined in **Table 1.1**.

1.8.1. Back-up/uninterruptible power requirements. 437 OSS/OSW operations section has generator back-up power. In the event that primary and generator power fail simultaneously then weather flight operations will move to the alternate weather operations site (bldg 1600, Rm 206.) If the alternate location is also without power, 28 OWS will provide back-up support according to the following three tiers of mission support outlined in **Table 1.1**.

Table 1.3. Three-Tier Back-up support Priority Table.

Mission Tier	Types of Products & Services	Back-up Priority
Tier 1a. Wartime, Contingency, and Military Operations other than war Tier 1b. Resource Protection	Definite Purpose Flight Weather Briefings, J-Alert weather briefings, wartime related flight weather briefings, etc. Forecast Weather Watches, Warnings and advisories	Immediately backed-up by 28 OWS
Tier 2. Peacetime and exercise operations	Flight Weather MEFs for local training and exercises, IR/VR route forecasts, Air Refueling route forecasts, etc.	Backed-up by 28 OWS as soon as Tier 1 priorities have been met.
Tier 3. Mission Planning	Three day outlook Mission Execution Long, climatology requests, staff support, etc.	Backed-up as resources become available after Tier 1 & 2 requirements have been met

1.9. Public Release of Weather Information. All weather information produced by the 437 OSS/OSW is “For Official Use Only”. 437 OSS/OSW will forward all requests for weather information from non-DOD/public agencies to the 437 AW Public Affairs (PA) office. 437 OSS/OSW will not routinely provide Charleston AFB historical or real-time weather data to non-governmental agencies.

1.10. Aircraft Mishaps. 437 OSS/OSW will initiate a data save for aircraft accident investigation boards, as required. The 28 OWS will also be notified to initiate a data save to ensure regional products are available to use in the investigation.

1.11. OPREP-3 Reporting . 437 OSS/OSW will contact the 437 AW/CP within 15 minutes of observing severe weather at CAFB. The criteria are: hail $\frac{3}{4}$ ” or greater, winds 50 KT or stronger and/or a tornado is reported at CAFB. The weather flight will provide the 437 AW/CP with data that includes the pertinent forecast, weather warning criteria and operational status of weather monitoring equipment. This is necessary because when severe weather is observed at CAFB, the 437 AW/CP needs to forward an OPREP-3 report to higher headquarters.

Chapter 2

WEATHER OBSERVING

2.1. General. The Federal Aviation Administration (FAA) is ultimately responsible for weather observations at Charleston AFB/International Airport, through a subcontractor, The IBEX, Inc. The official weather observation is taken by an Automated Surface Observing System (ASOS), and augmented by a certified weather observer who ensures the accuracy of the ASOS observations. The official weather hourly, special, and local observations are disseminated (24 hours a day, 7 days a week) as required by FAA Order 7900.5B. The ASOS equipment is located in the center of the airfield adjacent to runway 33/15. See [Attachment 3](#) for equipment location. The weather observation point is outside of the National Weather Service building on the commercial side of the runway.

2.2. Terms Explained.

2.2.1. Continuous Weather Watch (CWW). A CWW is conducted by the IBEX weather observer who, with the assistance of the ASOS continuously monitors the weather. The CWW program involves detecting the special criteria in [Table 2.1](#).

2.2.2. Cooperative Weather Watch. This is a program wherein qualified non-weather personnel assist the weather observer in monitoring the weather conditions for the occurrence of previously unreported weather conditions which could affect flight safety or which could be critical to the safety or efficiency of other local operations and resources. At Charleston AFB, a Cooperative Weather Watch is in effect between the IBEX weather observers and the air traffic control tower personnel.

2.2.3. Hourly Observations (METAR). Hourly observations are complete weather observations reported at approximately 55-59 minutes after each hour. See below for an example METAR. AFP 11-238, *Aircrew Quick Reference to the METAR/TAF Codes* gives instructions on how to decode the observation.

```
METAR KCHS 081055Z 21019G27KT 1/2SM -SN FG SCT011 OVC015 01/M02  
A2945 RMK PK WND 19029/16 SLP045
```

2.2.4. Special Observations (SPECI). Special observations are taken to report significant changes in weather elements at airports that are required and scheduled to transmit surface observations on long-line circuits. [Table 2.1](#) shows special observation criteria for Charleston AFB/International Airport.

2.2.5. Local Observations. Local observations are taken primarily to report changes in conditions significant to local airfield operations but do not meet special criteria. [Table 2.2](#) lists local observation criteria for Charleston AFB.

2.2.6. Prevailing Visibility. The greatest visibility equaled or exceeded throughout at least one-half the horizon circle. The visibility does not have to be continuous throughout 180 consecutive degrees (i.e., it may be composed of sectors distributed anywhere around the horizon circle).

2.2.7. Sector Visibility. The visibility in a specified direction representing a 45-degree arc of the horizon circle.

2.2.8. Surface Visibility. The prevailing visibility determined from the usual point of observation. It normally represents a value observed at a height of 6 feet.

2.2.9. Tower Visibility. The prevailing visibility determined from the Control Tower when the surface visibility is determined from another location such as the weather station.

2.2.10. Runway Visual Range (RVR). The maximum distance in the direction of takeoff or landing at which the runway, or specified lights or markers delineating it, can be seen from a position above a specified point on its center line at a height corresponding to the average eye level of pilots at touch-down.

2.3. Observing Limitations.

2.3.1. The 437 OSS/OSW has an official Memorandum of Agreement (MOA) with The IBEX Group Inc., the FAA subcontractor, which outlines required weather observation support. Changes to support must be coordinated through several agencies. Therefore, agencies requiring changes to SPECI or local weather observation criteria outlined in this instruction should provide 30 days advance notice prior to desired date of change.

2.3.2. The 437 OSS/OSW has no control over the official weather observation. However, we are able to contact the official observer via telephone.

2.3.3. The FAA conducts a Continuous Weather Watch. Therefore, the FAA contract weather observer monitors weather conditions on a continuous basis. In addition to METAR observations, observers take and disseminate observations when conditions meeting SPECI and LOCAL criteria occur.

2.3.4. FAA observations do not include local Runway Visual Range readings. This information can be obtained by calling the 437 OSS/OSW or by contacting the Air Traffic Control Tower.

2.3.5. There are some subtle differences between the FAA observation rules/regulations and Air Force guidance. However, the MOA between The IBEX Group Inc and Charleston AFB ensures mission critical observation criteria are met.

2.3.6. The ASOS uses a laser cloud height detection system to accurately measures cloud bases up to 12,000 feet. To measure a cloud base, the cloud must be directly over the laser projector. An observer verifies all sensor readings to determine whether a true ceiling exists or if a small patch of clouds just happens to be over the sensor's beam. Even though the ASOS is augmented by a certified weather observer, it is not unusual for the official observation to report a sky condition of "CLR" (clear) when there are clouds above 12,000 feet.

2.3.7. Wind measurements reported are a 2-minute average of direction and speed. Gusts are a five second average of five one second measurements.

2.3.8. Due to equipment limitations the ASOS does not take a special observation for 3/8-mile visibility (Minimum ILS approach runway 15).

2.3.9. The NWS does not provide Runway Visual Range (RVR) information on observations and does not take special observations for changes in RVR. The Federal Aviation Administration (FAA) provides the 437 OSS/OSW with readout of the RVR for runway 33/15. The OSW can provide aircrews with RVR information upon request.

2.3.10. The ASOS does not have the capability to take a SPECI observation when precipitation begins or ends, apart from those phenomena listed in block 6 of [Table 2.1](#).

2.3.11. The 437 OSS/OSW is not responsible for providing RCR IAW AFMAN 15-111. In addition, the ASOS is not equipped or augmented to provide this information.

2.4. Special and Local Observation Criteria.

2.4.1. Charleston AFB/International Airport weather observers take and disseminate observations as warranted using criteria outlined in [Table 2.1.](#) and [Table 2.2.](#)

Table 2.1. Special Observation Criteria.

Phenomena:	Does the Following:
1. Ceiling	Forms or dissipates below, decreases to less than or, if below, increases to equal or exceed (in feet AGL): 3000, 1500, 1000, 700, 600, 500, 400, 300 and 200
2. Prevailing Visibility	Decreases to less than or, if below, increases to equal or exceed (in statute miles, SM): 3, 2 ½, 2, 1 ½, 1¼, 1, ¾, ½ and ⅜.
3. A layer of clouds or obscuring phenomena aloft	Is observed below 1000 feet and no layer aloft was reported below this height in the previous METAR. NOTE: The FAA criteria of 1000 feet is more stringent than the Air Force standard of 700 feet.
4. Tornado or Funnel Cloud	Is observed or disappears from sight NOTE: Single element SPECIs will be taken only when a delay in reporting all elements of the SPECI would cause an immediate threat to life or property. e.g., "TORNADO SW MOV NE."
5. Thunderstorm	a. Begins (When thunder is first heard or when hail is falling or lightning is observed in the immediate vicinity of the airfield and the noise level is such that the resulting thunder cannot be heard. Not required to report the beginning of a new thunderstorm if one is currently being reported) b. Ends (15 minutes after last occurrence of criteria for a thunderstorm)
6. Precipitation	a. Hail begins or ends b. Freezing precipitation begins, ends, or changes intensity c. Ice pellets begin, end, or change intensity NOTE: FAA criteria does not require a SPECI be taken for the beginning/ending of other types of precipitation (e.g. rain)
7. Wind Squall	Wind speed increases at least 16 knots, and is sustained at 22 knots or more for at least a minute. A SPECI is not required to report a squall if one is currently in progress
8. Wind Shift	The wind direction changes by 45 degrees or more in less than 15 minutes with sustained winds (or gust) of 10 knots, or more, throughout the wind shift

Phenomena:	Does the Following:
9. Tower Visibility	Upon receipt of a reportable tower visibility value, when either tower or prevailing surface visibility is less than 4 miles (6000 meters) and they differ by a reportable SPECI criteria value, a SPECI will be transmitted with the lower of the two visibility values as the prevailing visibility and the higher visibility as a remark in the observation.
10. Volcanic Ash	When first observed
11. Real-World Nuclear Accident	When notified of a real-world nuclear accident NOTE: The remark "AEROB" will be added as the last remark on the longline disseminated observations
12. Miscellaneous	Any other meteorological situation, which, in the opinion of the observer, is critical to the safety of aircraft operation.

Table 2.2. Local Observation Criteria.

1. Aircraft Mishap	Immediately following notification or sighting of an aircraft mishap at or near Charleston AFB/International Airport.
2. Miscellaneous	Any other meteorological situation which, in the opinion of the observer, is significant to local operations

2.4.2. The following limitations may impact the accuracy of Charleston AFB/International Airport weather observations:

2.4.2.1. Buildings, hangars, parked aircraft, light towers, and trees block portions of the sky as well as ground visibility reference markers.

2.4.2.2. Light contamination can obscure sky conditions and visibility when observing at night.

2.4.2.3. Aircraft engine noise can prevent the observer from hearing thunder.

2.5. Meteorological Equipment Locations and Limitations. Attachment 3 shows the runway complex and the location of the ASOS sensors and RVR sensors.

2.5.1. ASOS. The ASOS is an FAA certified suit of equipment providing standard weather data. A readout of the ASOS meteorological sensor data is located in the BWS in Building 169.

2.5.2. The WSR-88D, Doppler Weather Radar. The NWS maintains a Weather Surveillance Radar - 1988 Doppler (WSR-88D) Next Generation Radar (NEXRAD). The radar antenna is located in Jasper county South Carolina (53 statute miles SSW of Charleston AFB). The NWS provides weather radar data for Charleston AFB via a dedicated data feed. The 437 OSS/OSW maintains a continuous radar watch of Charleston AFB and the local flying area to include North Field Auxiliary Airfield, portions of Air Refueling Tracks 202 and 207, as well as several local area airfields (Savannah, GA, Columbia, SC, Shaw AFB, SC and Myrtle Beach, SC, for example). Limitations of the WSR-88D include:

2.5.2.1. Echoes below approximately 5000 feet are not detectable in the local Charleston AFB air-space.

2.5.2.2. Inability to detect lightning strikes.

2.5.2.3. Range of 150 nautical miles (NM) for most radar products, and an effective range of about 60 NM for detection of severe weather.

2.5.2.4. There is currently no operationally suitable backup for the WSR-88D. However, basic radar loops are available via NIPERNET.

2.5.3. National Lightning Detection System (NLDS). The NLDS is a nationwide lightning detection system that displays the locations of cloud-to-ground lightning strikes. The BWS has access to this system and monitors it for lightning strikes within 10 Nautical Miles of Charleston AFB. This data is then used in concert with the official weather observation and a local lightning detection system to issue or cancel lightning advisories and warnings. The system is also used during flight weather briefings to indicate locations of current cloud-to-ground lightning strikes. **NOTE:** This system does not display the locations of cloud-to-cloud or cloud-to-air lightning strikes.

2.5.4. Lightning Detection System (LDS). The local LDS detects cloud-to-ground lightning strikes within 100 NM of Charleston AFB. This data is used in conjunction with the NLDS and official weather observation to issue or cancel lightning advisories and warnings. The LDS also contains an electric field mill (EFM) that measures the electrical charge of the atmosphere; the weather flight uses this information to determine the potential for lightning within a 10NM radius of Charleston AFB. **NOTE:** This system does not display the locations of cloud-to-cloud or cloud-to-air lightning strikes.

Chapter 3

WEATHER FORECASTING

3.1. General. The 28th OWS and local CWT provide round-the-clock forecasting services (24 hours a day, 7 days a week) for Charleston AFB, 437 AW, 315 AW and hosted units identified herein. Forecast products include, but are not limited to: TAFs, weather warnings, watches, advisories, MEFs, and flight weather briefings.

3.2. Limitations. The 437 OSS/OSW will provide forecast support as stated in this instruction and other governing directives. Supported agencies should be aware of the limitations imposed by the current state of the science of meteorology in addition to limitations in current meteorological techniques and equipment. This is especially true in data-sparse locations. Forecasting for elements or locations not contained in pertinent directives is neither implied nor should it be inferred.

3.3. Terms Explained.

3.3.1. Combat Weather Team (CWT). A generic term used to describe a weather team that provides mission-tailored weather products and services to a supported unit either in garrison, or at a deployed location. CWTs are normally organized as Weather Flights (WF) under Operational Support Squadrons (OSS) for USAF operations.

3.3.2. Meteorological Watch (METWATCH). The process of monitoring observed and forecast weather and informing supported agencies when certain established weather conditions that could affect their operations or pose a hazard to life or property are occurring or are expected to occur.

3.3.3. MISSIONWATCH. The monitoring of aerospace weather for a specific mission (i.e., ground, air or space) and informing supported agencies when unforecast mission-limiting phenomena could effect operations.

3.3.4. Operational Weather Squadron (OWS). An organization comprised of management, technician, and training personnel responsible for providing regional weather support. Their mission is to provide timely, accurate, and relevant weather information and products for their AOR. They also produce and disseminate weather watches, warnings, and advisories; TAFs; regional and operational-level weather products; and flight weather briefings for transient aircrews and units without collocated weather teams. See [Attachment 2](#) for a map of CONUS OWS's areas of responsibility.

3.3.5. Terminal Aerodrome Forecast (TAF). The TAF is the official forecast for the airfield covering a 24-hour period.

3.3.6. Thunderstorm (TS). A convective storm which implies the presence of lightning, hail, gusty winds, low-level wind shear, heavy precipitation, icing, and turbulence.

3.3.7. Weather Radar. Radar data is received from a 10-centimeter wavelength WSR-88D (Weather Surveillance Radar – 1988 Doppler), and displayed on the Doppler Weather Radar Principal User Processor (PUP). See section [2.5.2](#) for more information on the radar.

3.3.8. Weather Satellite Imagery. The 437 OSS/OSW uses NTFS and the Internet to retrieve and display visual, infrared, and water vapor satellite imagery.

3.4. Terminal Aerodrome Forecast (TAF). Used by Air Force weather forecasters to encode forecasts. See below for a sample TAF. AFP 11-238, *Aircrew Quick Reference to the METAR/TAF Codes* gives instructions on how to decode the TAF. Unless otherwise specified, the forecast weather elements in the main body of the forecast text (clouds, weather, wind, etc.) apply to the area within a five statute mile radius of the Charleston AFB runway complex. Forecast elements represent the most probable conditions expected during the forecast period. The term vicinity (VC) may be used and normally refers to the area between 5 and 10 statute miles from the center of the runway. The TAF is disseminated locally via the NTFS. It is also available via the weather flight's web page;
<http://globemaster/437og/weather/index.html>

KIGC FCST COR 2217-2317 03008KT 7 SCT120 BKN200 OVC250
 ALTIMETER29.95INS TEMP 20C AT 2000Z TEMP 10C AT 0800Z
 BECMG 04-05 06006KT 7 SCT045 BKN100 OVC200 ALTIMETER29.90INS
 BECMG 06-07 03008KT 7 OVC030 ALTIMETER29.92INS
 BECMG 09-10 03009KT 6 -RA BKN020 OVC050 ALTIMETER29.91INS
 BECMG 12-13 04012KT 7 VCSH SCT020 OVC030 ALTIMETER29.90INS
 BECMG 14-15 04013KT 7 NSW BKN030 BKN080 OVC200
 ALTIMETER29.86INS COR 1716 22/RVH

3.4.1. When certain weather thresholds are expected to occur, the change will be reflected in the TAF, to include the expected time of occurrence, duration and intensity. These *specification criteria* are listed in **Table 3.1**. The TAF code shows forecast changes in the weather using the following groups:

- (1) BECMG (becoming) indicates that the change is expected to occur at a fairly constant rate and be complete by the end of the noted time period. BECMG groups will normally be 1 hour and will never be more than 2 hours. EXAMPLE: BECMG 1213 indicates a change expected between 1200 and 1300 UTC.
- (2) FM (from) shows that the change is expected to take place quickly at a specific time.
- (3) TEMPO (temporary) shows that the change is expected to occur frequently but briefly between two points in time. TEMPO is used when conditions are expected to occur for less than one hour at a time (1 hour 15 minutes for thunderstorms, the extra 15-minute period between the time thunder is last heard and the thunderstorm is officially ended).

3.4.2. TAF Issue Times. TAFs are issued three times daily at the following times: **0400 Local (L) time, 1200L and 2000L**. The 28 OWS issues the 24-hour TAF for Charleston AFB under the International Civil Aviation Organization (ICAO) identifier KIGC.

3.4.3. TAF Amendments. Charleston AFB and 28th OWS forecasters will ensure the TAF is representative of expected or actual conditions and will amend the TAF for the criteria listed in **Table 3.2**.

3.4.3.1. Forecasters may amend the TAF anytime they consider it advisable in the interest of safety, efficiency of aircraft operations, flight planning, operational control, or to assist in-flight aircraft.

3.4.3.2. Forecasters will amend the TAF anytime an unforecast change is expected to occur, or occurs, and is expected to last more than 30 minutes and is not correctly forecast by the next whole hour. An amendment is also required when a forecast condition does not occur by the specified hour and is not expected to occur within the next 30 minutes and is not forecast by the next whole hour from the time of occurrence.

3.4.3.3. Temporary groups will be amended when they become predominant and are not expected to return to temporary, or do not occur and are not expected to occur.

3.5. 28 OWS Outages. When weather operations at 28 OWS are interrupted (e.g. power outage, natural disaster, etc.) associated TAF, weather watch, warning, and advisory responsibility will be transferred to the 437 OSS/OSW until such time as 28 OWS is postured to resume operations. Other 28 OWS weather information responsibilities (e.g., graphical products) will be transferred to other agencies as necessary.

3.6. Mission Execution Forecast (MEF). The MEF is a customized weather product providing terrestrial and space weather data and forecasts for a specific mission or set of missions. It integrates aerospace weather with the customer's tactics, weapons systems, environmental sensitivities of equipment, and other operational requirements. MEFs can take many forms from web based products to the more traditional 175-1, *Flight Weather Briefing*.

Table 3.1. TAF Specification Criteria.

1. Ceiling or visibility increases to equal or exceed, or decreases to less than:	
<u>Ceiling:</u>	<u>Visibility:</u>
3,000 feet	3 miles
1,000 feet	2 miles
200 feet	½ mile
2. Wind.	
a. Speed changes of 10 knots or more, including gusts.	
b. Direction change of 30 degrees or more when the predominant wind speed or gusts are expected to be in excess of 15 knots.	
4. Thunderstorms.	
5. Turbulence and/or icing conditions not associated with thunderstorms, from the surface to 10,000 feet (AGL) meeting moderate or severe thresholds for CAT II aircraft.	
6. Non-Convective Low Level Wind Shear.	
7. Weather warning/watch/advisory criteria that can be specified in the TAF.	
8. Other. Any other meteorological condition which, in the opinion of the forecaster, is essential to adequately describe the weather.	

Table 3.2. TAF Amendment Criteria.

1. Ceilings or visibilities are observed or later forecast to increase to or exceed, or decrease to less than any of the following values:	
<u>Ceiling:</u>	<u>Visibility:</u>
3,000 feet	3 miles
1,000 feet	2 miles
200 feet	½ mile
2. Wind.	
a. The difference between the predominant wind speed and forecast wind speed is ≥ 10 knots (including gusts).	
b. An error in forecast wind direction of 30 degrees or more when the predominant wind speed (including gusts) is, or is forecast to be, in excess of 15 knots. Also refer to 7c.	
3. Thunderstorms – incorrect by forecast start or end time.	
4. Beginning or ending of turbulence and/or icing conditions, not associated with thunderstorms, from the surface to 10,000 feet MSL which first meet, exceed, or decrease below moderate or severe thresholds for CAT II aircraft and wasn't specified in the forecast.	
5. Any of the locally established criteria for weather warnings and advisories (Table 4.2. , and Table 4.3.) including non-convective low-level wind sheer, which:	
a. Occur, or are expected to occur, during the forecast period but weren't correctly specified in the forecast.	
b. Are no longer occurring or expected to occur.	
c. Exception: It is NOT necessary to amend the forecast for the issuance of a 25kt wind advisory since the only affected customer (AMOC) does not receive TAFs.	

3.6.1. Locally Generated MEFs:

3.6.1.1. North Field MEF. Whenever the Air Order of the Day (AOD) planner shows that North Field is scheduled for SAAF or DZ training, the weather flight produces a “North Field MEF” which is posted to the weather web page. This is a planning MEF tailored specifically for C-17A training at North Field. The flight weather briefing provided to the aircrew prior to departure contains the official North Field MEF.

3.6.1.2. Air Refueling (AR) Track MEF. Whenever one of our local AR tracks (AR 202, 207, or 216) is scheduled for use on the AOD planner, the weather flight produces an “Air Refueling Track XXX” MEF which is posted to the weather web page. This is a planning MEF specifically tailored for C-17A air refueling operations. The flight weather briefing provided to the aircrew prior to departure contains the official AR track forecast.

3.6.1.3. Drop Zone (DZ) Forecasts. Airdrop dropzone (DZ) forecasts are provided upon request (one day advance notice is appreciated). The BWS coordinates with the lead forecast units responsible for issuing the DZ forecast. If no forecast is available, the local duty forecaster will issue the DZ forecast.

3.6.1.4. Flight Weather Briefings. Flight weather briefings are also considered MEFs. Flight weather briefings will, whenever possible, be provided in person at the BWS. Briefings will be

conducted IAW AMCI 15-101 and AFMAN 15-135. Special mission briefings (i.e., higher headquarters directed) are normally delivered at Bldg 169 with 48-hour advance notice when at all possible.

3.6.1.4.1. Written flight weather briefings will be prepared using DD Form 175-1, **Flight Weather Briefing**, AMC Form 181, **AMC Mission Weather Briefing**, or NTFS computer generated forms.

3.6.1.4.2. Aircrews who receive a faxed weather briefing form must contact (by telephone or in person) the duty forecaster prior to take-off for the weather briefing to be considered official.

3.6.1.4.3. Required information for validity includes brief time, forecaster's initials, and (when applicable) appropriate void times.

3.6.1.4.4. Aircrews may receive verbal briefings upon request. Verbal weather briefings will be recorded on a locally generated form.

3.7. Weather Briefings. 437 OSS/OSW provides weather briefings to numerous customers on a scheduled basis. These briefings provide commanders, staff, operations, and aircrew personnel with weather information for planning and decision-making. Crisis Action Team (CAT), deployment, stand-up, planning, aircrew safety and climatological briefings are provided routinely upon request. New briefing requirements and/or format changes for existing briefings should be coordinated with the CWT 10 working days prior to implementation.

3.8. Tropical Storm/Hurricane Support.

3.8.1. The National Hurricane Center issues tropical storm/hurricane forecasts of storm strength, current position, and forecast movement. In addition, they are responsible for issuing tropical storm/hurricane watches and warnings for the entire Atlantic Ocean Basin. The CWT monitors these bulletins along with other meteorological data to advise the 437 AW/CC whenever tropical storm or hurricane sustained surface winds of 50 knots or greater are forecast to affect Charleston AFB. The 437 AW/CC determines evacuation response and hurricane condition (HURCON) status. Protective actions are taken in accordance with 437 AW Basic Unit Supplement, Attachment HUREVAC.

3.8.2. HURCONs are determined by the time remaining until 50 knot sustained surface winds affect Charleston AFB. HURCON 4 implies winds possible within 72 hours while HURCON 3 implies winds possible within 48 hours. HURCON 2 means winds are expected within 24 hours and HURCON 1 indicates winds are expected within 12 hours or are occurring. The weather flight will provide the Objective Wing Command Post and Wing Plans with hardcopies of the official NHC forecast track once a storm system is within 750 NM or 75-80 hours from Charleston AFB. This data will also be made available through the weather flight's weather web page;

<http://globemaster/437og/weather/index.html>

3.9. Alternate Weather Operations Site. In the event that an evacuation of the BWS becomes necessary, the duty forecaster will relocate to the Alternate Weather Operations Site at Bldg 1600, Room 206 (OSS Conference Room). Forecasting support from this location will be limited and governed by locally generated base weather station procedures. Once in place, the forecaster will establish telephone contact with the Objective Wing Command Post, 28 OWS and the AMC Tanker Airlift Control Center (TACC).

Customers must come to the alternate location to obtain flight weather briefings or coordinate to have briefings faxed. Faxed briefings are not considered official unless the CWT is contacted to go over briefing once received.

3.10. Pilot-to-Metro Service (PMSV)/Pilot Reports (PIREPs)/Air Reports (AIREPs).

3.10.1. PMSV contact is available during 437 OSS/OSW published duty hours on frequency 344.6 MHz. PMSV is the primary means of disseminating weather information to airborne aircraft. It is also the primary method used by aircrews to pass significant weather data to the duty forecaster. PIREPs from aircrews containing significant data are transmitted locally and longline. PMSV contacts will be recorded on a locally generated form.

3.10.2. PMSV Contact after published duty hours. Pope AFB and Warner Robins AFB weather flights are available 24 hours a day for PMSV support. The 28 OWS provides PMSV via phone patch. Aircrews must initiate PMSV phone patches with the 28 OWS at DSN 965-0588, ext 221.

3.10.3. PMSV Outages. During PMSV outages either Pope AFB or Warner Robins AFB is contacted and asked to answer PMSV calls for Charleston.

3.10.4. PIREPS of airborne weather conditions should include the location and flight level of the aircraft, time of observation, aircraft type, and description and extent of meteorological elements. PIREPs are normally transmitted both locally and longline.

3.11. Air Reports (AIREPs). AF Form 72s are provided to all aircrews flying overseas from Charleston AFB. AIREP forms are completed enroute and debriefed at the destination weather station. The information is transmitted to Air Force Weather Agency (AFWA) to develop/update computer flight plans.

3.12. Toxic Corridor Calculations. The Civil Engineering Readiness Flight is responsible for calculating toxic corridors. The CWT provides environmental data as needed.

3.13. Space Weather Support and Service: Upon request from supported units, the 437 OSS/OSW will provide space weather support and services. In addition, there is a link on the weather web page with space weather forecasts. Examples of products are listed below. (This is not an all-inclusive listing.)

3.13.1. Ionospheric Conditions for High Frequency (HF) Radio Wave Propagation Applications.

3.13.2. Ionospheric Conditions for Ultrahigh Frequency (UHF) SATCOM (245-410 MHz) Applications.

3.13.3. Point-to-Point High Frequency (HF) Radio Wave Useable Frequency Forecasts.

Chapter 4

WEATHER WARNINGS, WEATHER WATCHES, AND WEATHER ADVISORIES

4.1. General. Certain weather conditions endanger property or life, pose a safety hazard, or adversely effect a supported agency's operations. Weather warnings, watches, and advisories are the vehicles through which supported agencies are notified of these critical weather conditions. The 28 OWS and 437 OSS/OSW work in concert to meet customer weather watch, warnings, and advisory notification requirements. The 28 OWS is the primary agency responsible for issuing forecast weather warning, watches, and advisories. The 437 OSS/OSW issues observed weather warnings and advisories. The 437 OSS/OSW normally coordinates with the 28 OWS prior to any watch, warning, or advisory being issued. 437 OSS/OSW assumes full responsibility for watch, warning and advisory support in the event the 28 OWS is not able to perform these functions.

4.2. Terms Explained

4.2.1. Weather Watch. A special notice provided to supported customers that alerts them of the *potential* for weather conditions of such intensity as to pose a hazard to life or property for which the customer must take protective action.

4.2.2. Weather Warning. A special notice provided to supported customers that alerts them to weather conditions of such intensity as to pose a hazard to life or property.

4.2.3. Weather Advisories. A special notice provided to supported customers that alerts them to weather conditions that could affect their operations.

4.2.3.1. Terminal Weather Advisory. An advisory issued for weather conditions within a 5 NM radius from the center of the runway at Charleston AFB.

4.2.3.2. Area Weather Advisory. Area weather advisories are issued for weather conditions within a 25 NM radius of the center of the runway. The one exception to this is the observed weather advisory for lightning within 10 NM of Charleston AFB.

4.2.3.3. Forecast Weather Advisory (FWA). Forecast weather advisories are issued when weather meeting predetermined advisory criteria is forecast to occur.

4.2.3.4. Observed Weather Advisory (OWA). Observed weather advisories are issued when specified weather conditions are actually observed.

4.2.4. Actual Lead Time (ALT). The elapsed time between the issuance of a Forecast Weather Advisory or Weather Warning and the first occurrence of the event.

4.2.5. Desired Lead-time (DLT). The minimum amount of advance notice a supported agency needs to react to an advisory or warning (within the limits of state-of-the-art forecast capabilities).

4.2.6. False Alarm Rate (FAR). The number of weather warnings and/or advisories verified with positive lead-time divided by the total number of warnings issued. For example: Four warnings were issued, one occurred with positive lead-time--FAR is 75%.

4.3. Warning, Watch, and Advisory Support Abilities.

4.3.1. The local CWT coordinates customer requirements for weather warnings, watches, and advisories, then relays this information to the 28 OWS. Customers determine, from technical order specifications or through other means, the minimum time required to enact essential protective measures prior to the occurrence of various weather threats. This minimum reaction time is the basis for desired lead-time for warnings, watches and advisories. AFMAN 15-129, *Aerospace weather operations-processes and Procedures*, contains standard weather watch and warning criteria, and recommended desired lead times.

4.3.2. Supported agencies must understand that FARs will increase as the DLT is increased. It is operationally critical that DLTs be confined to the actual minimum reaction time required.

4.4. Charleston AFB Weather Watch Criteria. All terminal weather watches are issued for a 5 NM radius from the center of the runway at Charleston AFB. If weather conditions do favor severe weather, or if severe weather is imminent, the watch will be upgraded to a warning. **Table 4.1.** shows the weather watch criteria for Charleston AFB.

Table 4.1. Weather Watch Criteria.

Criteria	Desired Lead Time
Tornado	4 hours
Severe Thunderstorm (Winds \geq 50 Knots and/or Hail \geq 1/2 inch*)	4 hours
Freezing Precipitation (Any Intensity)	4 hours
Measurable Snowfall (Trace or Greater \leq 12 hours)*	4 hours
Lightning and/or Thunderstorms (within 5 NM)	30 minutes

NOTE: * Denotes change from standard weather watch criteria listed in AFMAN 15-129. Normally there are two standard hail watches, one for 1/2 inch and the other for 3/4 inch. Locally they have been combined into one watch for hail 1/2 inch or greater. Standard watch for snowfall is normally issued for greater than 2 inches accumulation in 12-hrs. Locally there are no watches for blizzard conditions or sandstorms, as this phenomenon doesn't occur locally.

4.5. Charleston AFB Weather Warning Criteria. A weather warning is issued for situations that require supported agency to take protective action. Weather warnings for Charleston AFB cover an area within a five NM radius of the center of the runway complex. **Table 4.2.** shows Charleston's weather warning criteria and desired lead times.

Table 4.2. Weather Warning Criteria.

Criteria	Desired Lead Time
Tornado	5 minutes
Hail $\geq \frac{1}{2}$ inch associated with Severe Thunderstorm*	60 minutes
Winds ≥ 50 Knots associated with Severe Thunderstorm*	60 minutes
Winds ≥ 35 Knots but < 50 Kts associated with Moderate Thunderstorm*	30 minutes
Winds ≥ 50 Knots*	60 minutes
Winds ≥ 35 Knots but < 50 Kts*	30 minutes
Freezing Precipitation (Any Intensity)	60 minutes
Measurable Snowfall (Trace or Greater ≤ 12 hours)*	120 minutes
Lightning within 5 NM of Charleston AFB	Observed
NOTE: This is the only warning issued locally by the 437 OSS/OSW	
NOTE: Only one warning, which may contain more than one warning criteria, will be in effect at any given time. The only exception to this is the observed warning for lighting within 5 NM of Charleston AFB. This warning will be issued separately from any other warning.	

NOTE: * Denotes change from standard weather warning criteria listed in AFMAN 15-129. Deviations are based on locally coordinated requirements. Normally there are two standard hail warnings, one for $\frac{1}{2}$ inch and the other for $\frac{3}{4}$ inch. Locally they have been combined into one warning for $\frac{1}{2}$ inch or greater. Wind warnings have been broken out separately to show winds associated with/with out thunderstorms. Locally there are no warnings for blizzard conditions or sandstorms, as this phenomenon doesn't occur locally.

4.5.1. A warning will not be issued if there is an unforecast occurrence that has stopped and is not expected to recur.

4.6. Charleston AFB Weather Advisory Criteria. Weather advisories are issued whenever specified criteria are expected at or near Charleston AFB. [Table 4.3.](#) lists the forecast weather advisory criteria and [Table 4.4.](#) lists the observed weather advisory criteria used at Charleston AFB.

Table 4.3. Forecast Weather Advisory Criteria.

Criteria	Desired Lead Time
Surface Winds ≥ 25 but < 35 Knots associated with thunderstorms	30 minutes
Surface Winds ≥ 25 but < 35 Knots	30 minutes
Temperature $< 25^{\circ}\text{F}$	60 minutes

Table 4.4. Observed Weather Advisory Criteria.

Criteria	Desired Lead Time
Ceiling/visibility less than 200 feet/1/2 mile	Observed
Ceiling/visibility less than 300 feet / 1 mile	Observed (NORAD Det Advisory)
Ceiling/visibility less than 500 feet / 1 1/2 mile	Observed (NORAD Det Advisory)
Crosswind \geq 30 knots not associated with thunderstorms	Observed
Crosswind \geq 25 knots but < 30 knots not associated with thunderstorms	Observed
Lightning within 10 NM of CAFB	Observed
Tailwind component 20 knots or greater with dry runway	Observed (NORAD Det Advisory)
Tailwind greater 10 knots or greater with wet runway	Observed (NORAD Det Advisory)
Moderate or greater turbulence below 10,000 feet AGL within 25 NM of Charleston AFB (Area weather advisory)	Observed
Moderate or greater icing below 10,000 feet AGL within 25 NM of Charleston AFB (Area weather advisory)	Observed
Low Level Wind Shear below 2000 feet AGL (not associated with thunderstorms)	Observed
Engine induction icing potential for F-16	Observed (NORAD Det Advisory)
Sea state (wave heights) greater than 10 feet in SC coastal waters: (Area weather advisory)	Observed (NORAD Det Advisory)
Sustained surface winds greater than 25 kts over SC coastal waters (Area weather advisory)	Observed (NORAD Det Advisory)

4.7. Dissemination of Weather Watches, Warnings, and Advisories. The 28 OWS disseminates forecast weather watches, warnings and forecast weather advisories to base agencies through the NTFS. 28 OWS calls the 437 AW Command Post to ensure receipt. During non-duty hours, the CP will recall the standby forecaster. The CWT disseminates observed weather warnings and advisories to base agencies through NTFS (see [Attachment 4](#)). The CWT calls the 437th AW Command Post and Base Operations to verify receipt of all watches, warnings, and advisories issued during duty hours. The 437th AW Command Post and Base Operations are then responsible for in-turn notification of the agencies shown in [Attachment 4](#). [Attachment 4](#) shows the progressive notification matrix used to ensure all base agencies are made aware of pertinent weather watches, warnings and advisories. This scheme does not include further internal notification within each agency.

4.7.1. Weather Watch, Warning, and Advisory Numbering. Each watch, warning, or advisory is numbered sequentially. The first two numbers indicate the month and the last three numbers indicate the actual number of the watch, warning, or advisory (e.g., 10-003 is the third issued in October.) All weather warnings are also available through the weather flight's weather web page.

4.7.1.1. Only one forecast weather watch or warning, which may contain more than one criteria, will be in effect at any given time. The only exception to this is the observed warning for lighting within 5 NM of Charleston AFB. This warning will be issued separately from any other warning.

Chapter 5

DISSEMINATION OF WEATHER INFORMATION

5.1. General. The 437 OSS/OSW will assist supported agencies in maintaining an efficient, effective means of disseminating weather support information. Procedures developed to this end must ensure weather personnel do not spend more time communicating than monitoring weather conditions. All units receiving weather support must be involved in a continuous program of evaluation and improvement of the weather dissemination system, including inter-unit dissemination. Weather dissemination procedures must ensure those who need it receive the information. Individual commanders of units in need of weather information are responsible for having their units listed on Objective Wing Command Post or Airfield Operations weather warning, watch, and advisory notification lists, and in the correct order. All weather information available on the NTFS is available to the general base population via the weather flight's web page; <http://globemaster/437og/weather/index.html>. Anyone with access to the Charleston AFB Local Area Network (LAN) can view this data. Contact the 437 OSS/OSW for assistance on navigating through the different products available on the flight's weather web page.

5.2. New Tactical Forecast System (NTFS). The NTFS is used to acquire, process, display, and disseminate weather information. NTFS consists of a central processor located at the weather station. Forecasters use NTFS to display weather maps and other information. The NTFS is used to transmit and receive weather forecasts and observations for local and off-base agencies. The NTFS is also the primary dissemination tool for local weather watches, warnings, and advisories. The NTFS also acts as a web server that allows anyone on the base LAN to access weather data. This provides the widest possible coverage of local weather data available. The weather flight's web page can be accessed at: <http://globemaster/437og/weather/index.html>.

5.2.1. The NTFS is used to disseminate the following information:

- 5.2.1.1. Weather observations.
- 5.2.1.2. TAFs.
- 5.2.1.3. Terminal and area weather warnings, watches, and advisories.
- 5.2.1.4. Pilot reports (PIREPs) and AIREPs.

5.2.2. The following applies to all NTFS transmissions:

- 5.2.2.1. All wind directions are in degrees magnetic.
- 5.2.2.2. All weather observation and TAF heights are above ground level (AGL). PIREP heights are MSL. Other products, such as weather advisories, reference MSL and AGL as appropriate, but are normally in reference to AGL.
- 5.2.2.3. All distances are statute miles except for the observed thunderstorms / Lightning warning and PIREPs which use references to nautical miles.
- 5.2.2.4. Wind speeds are in knots.

5.2.3. The telephone and telefax will be used as a back-up for the NTFS

5.2.4. All the information available on NTFS is also available via the weather flight's web page. The NTFS and web page are the primary means of disseminating weather information throughout CAFB.

5.2.5. All times are in Universal Time Coordinate (UTC, also known as ZULU) unless the time is appended with an "L" in which case it is local time.

5.2.6. Those units possessing NTFS client viewer software or a dedicated NTFS computer terminal must monitor their system for operational status and assign a Point of Contact (POC) in writing to 437 OSS/OSW. Each agency experiencing an outage of their NTFS computer or Client Viewer software will report it to the Weather Flight (ext. 3011) so back-up procedures may be initiated (when required/necessary) and maintenance actions can be taken. The 437 OSS/OSW will train the unit POCs on the operation of NTFS Client Viewer software.

5.3. Dissemination From the Alternate Weather Operations Site. In the event of a BWS evacuation, Mission Execution Forecasts, Flight Weather Briefings, weather warnings, watches and advisories will be disseminated via telephone/telefax from the alternate weather operations site (Bldg 1600, Rm 206) to the Charleston AFB Objective Wing Command Post. The Objective Wing Command Post and Base Operations will, in turn, relay information in accordance with [Attachment 4](#).

5.4. Weather Warning, Watch, and Advisory Notification. As prescribed in [Chapter 4](#), 28 OWS and 437 OSS/OSW will enter weather warnings, watches, and advisories into the NTFS. Charleston AFB Objective Wing Command Post and Base Operations will further disseminate warnings, watches, and advisories they receive in accordance with [Attachment 4](#).

5.5. Base Cable Television Weather Channel. 437 OSS/OSW, through COMCAST Cable, maintains and operates an on-base CATV weather information channel (Channel 60). 437 OSS/OSW has connected its satellite image display system, the WSR-88D weather radar, the lightning detection system (LDS) and several small computers to an on-demand, multi-source selector. The current radar loop is displayed on a day-to-day basis, other sources are displayed as conditions or customers require. Additional sources will be added as technical specifications allow.

5.6. Weather Flight's INTRANET Web Page. 437 OSS/OSW maintains a web page with access to NTFS weather data. In addition, it provides easy access to other sources of weather information necessary to support Charleston AFB operations. The address of the page is: <http://globemaster/437og/weather/index.html>. It is available to anyone with access to the Charleston AFB LAN.

Chapter 6

SPECIAL MISSION REQUIREMENTS

6.1. General. The previous chapters covered support requirements for the majority of the operations on Charleston AFB. Information on units requiring unique support is outlined in this chapter. Any special support requirements not covered here should be coordinated with 437 OSS/OSW.

6.2. 437/315 AW Commanders and Staff. The 437 OSS/OSW will provide weather briefings at scheduled 437 AW Senior Staff meetings upon request. The 437 OSS/OSW will also respond to any recall as required by the 437 AW Commander.

6.3. Airfield Operations (437 OSS/OSA). Base Operations provides Runway Surface Conditions (RSC) and Runway Condition Readings (RCR) for the runway, taxiways, and ramps to aircrews. (AFI 13-213, *Airfield Management*).

6.4. Safety. The 437 OSS/OSW will provide meteorological data and/or personnel to assist in the investigation of ground, or aircraft mishaps, as required.

6.5. Special Requests. With sufficient advance notice (at least 1 working day), 437 OSS/OSW will provide any special operational, climatological, or flight safety briefings.

6.6. 437 Communications Squadron (437 CS).

6.6.1. The 437 OSS/OSW will notify the 437 CS Focal Point (FP) in the event of communications and support equipment outage, interruptions, and restorals. The duty forecaster will open and close all applicable job control numbers regarding meteorological and communications support equipment with 437 CS/FP.

6.6.2. The 437 OSS/OSW will assist the 437 CS/FP with any mission impact reports and coordinate scheduled maintenance to minimize the impact on weather operations.

6.7. Civil Engineering Squadron. Base Weather will provide the 437 Civil Engineer Squadron with a summary of the previous month's weather information upon request. This summary will include:

6.7.1. Average monthly maximum and minimum temperatures.

6.7.2. Cooling degree-days and heating degree-days.

6.7.3. Monthly peak wind direction and speed.

6.7.4. Monthly and yearly precipitation.

6.8. NORAD F-16 Detachment. 437 OSS/OSW supports this mission when assigned to Charleston AFB. Deployed NORAD Detachment commander or his designated representative should coordinate required weather support well in advance of arrival at Charleston AFB.

6.9. Special Operations Low Level II. 437 OSS/OSW supports this mission by providing 24/7 on-call forecasters with a response time of 30 minutes to provide short notice weather briefings for alert crew-

members. During periods when the weather flight is closed, preliminary flight weather briefings are provided to Airfield Management (Base Ops). Alert crews should use these briefings for initial weather familiarity in the event of a launch during non-duty hours and the on-call forecaster hasn't arrived yet. The on-call forecaster will then update the alert crew via the PMSV radio or through the Command Post upon arrival at the weather station.

Chapter 7

RECIPROCAL SUPPORT

7.1. General. The 437 OSS/OSW requires reciprocal support from various base agencies, particularly where the required support is beyond 437 OSS/OSW capabilities. The support requirements outlined herein are essential to 437 OSS/OSW and 28 OWS providing timely, accurate weather support to Charleston AFB.

7.2. 437 Communications Squadron (437 CS). The 437 CS will:

7.2.1. Maintain a priority listing for restoration of weather equipment. This list will be coordinated between 437 OSS/OSW and 437 CS and incorporated into 437 CS operating instructions (OI). The 437 OSS/OSW may alter this precedence with coordination from 437 CS if the meteorological situation warrants. Upon notification of a meteorological or communications outage of any type, 437 CS Focal Point will take the appropriate maintenance action in accordance with the priority listing, unless previously coordinated.

7.2.2. Provide access to weather equipment technical orders for 437 OSS/OSW.

7.2.3. Coordinate all scheduled maintenance on meteorological equipment with 437 OSS/OSW. If weather conditions dictate caution, weather equipment will not be taken down for scheduled maintenance.

7.3. Objective Wing Command Post (437 AW/CP). The 437 AW/CP will:

7.3.1. Notify 437 OSS/OSW duty personnel of:

7.3.1.1. Any weather watch, warning, or advisory issued by the 28 OWS that requires the 437 OSS/OSW on-call forecaster to be recalled. Use [Attachment 4](#) of this instruction to determine the weather watches, warnings and advisories require the stand-by forecaster to be recalled.

7.3.1.2. Any real-world or exercise incidents, briefings, or events that may involve or require weather support. This includes Crisis Action Team (CAT) meetings/briefings.

7.3.1.3. All aircraft diversions due to weather.

7.3.1.4. Refueling area weather reported by aircrews.

7.3.1.5. Any aircraft mishaps involving 437 AW assets.

7.3.1.6. Any reported damage to government property resulting from weather phenomena.

7.3.1.7. Any malfunctions or outages that prevent access to the Weather Flight's web page, used to view text data on weather watches, warnings and advisories.

7.3.2. Disseminate weather warnings, watches, and advisories to supported agencies as outlined in [Attachment 4](#) of this instruction.

7.3.3. When notified of any weather conditions that may require an OPREP-3 report, call the weather flight and obtain all weather information (to include the status of weather equipment) for possible inclusion in the report.

7.4. Airfield Operations (437 OSS/OSA) . The 437 OSS/OSA will:

7.4.1. Notify 437 OSS/OSW duty personnel of:

7.4.1.1. Aircraft and ground emergencies, mishaps, and accidents promptly.

7.4.1.2. Changes in force protection conditions, security postures and advanced states of readiness.

7.4.1.3. Notify 437 OSS/OSW of all impending arrivals and or diversions of distinguished visitors (DV).

7.4.2. Provide further dissemination of weather warnings, watches, and advisories in accordance with **Attachment 4** of this instruction.

7.4.3. Publish 437 OSS/OSW PMSV frequency and limitations in FLIPs and provide copies of these pamphlets as well as two copies of the Air Almanac (as published) to the BWS. 437 OSS/OSW will provide 72-hr advance notification (memo or e-mail) when any weather data needs to be changed in FLIPs.

7.4.4. Coordinate with 437 OSS/OSW in advance of the need to switch Bldg 169 from commercial electrical power to generator power and back again.

7.4.5. Ensure the BWS is included in all notifications via the secondary crash net.

7.4.6. Notify 437 OSS/OSW of runway changes and conditions (Runway Surface Condition – RSC).

7.4.7. Notify 437 OSS/OSW of all changes to the Bird Watch Condition.

7.5. NTFS USERS. All NTFS users will assign a unit NTFS POC in writing to the 437 OSS/OSW. The POC will serve as the focal point for changes to NTFS equipment, software, display and use. The units POCs will be responsible for training unit personnel on the operation and use of NTFS equipment and information. NTFS POCs will be required to sign for all NTFS equipment.

7.6. Flying Squadrons: Flying squadrons will:

7.6.1. Provide 437 OSS/OSW duty forecaster with advance notice about IR and VR routes scheduled for training use. It is imperative to notify the duty forecaster at least four hours prior to scheduled T/O time so that flight weather briefs can be prepared prior to crew arrival. Inform 437 OSS/OSW or pertinent weather agency of any significant weather features encountered in during the flight. PIREPs and weather debriefs are essential for continued future improvement of weather support.

7.6.2. Advise 437 OSS/OSW of any changes in operational requirements to include weather warnings, watches, and advisories criteria.

7.7. 437 OSS/OST. It is strongly recommended that all pilots receive a weather orientation briefing from 437 OSS/OSW during their initial in-processing to the wing.

Chapter 8

WEATHER THRESHOLDS

8.1. General. 437 AW Weather threshold tables identified by agencies.

Table 8.1. Cloud Ceiling.

Ceiling	Unit	Reference	Action
3000ft	437 OSS/OSW	AFMAN 15-111	Speci Observation Required
1500ft	437 OSS/OSW	AFMAN 15-111	Speci Observation Required
1000ft	437 OSS/OSW	AFMAN 15-111	Speci Observation Required
700ft	437 OSS/OSW	AFMAN 15-111	Speci Observation Required
600ft	437 OSS/OSA 437 OSS/OSW	FLIP AFMAN 15-111	Circling min for RWY 33 Localizer approach min for RWY 33 Straight-in approach min for RWY 33. Speci Observation Required
500ft	437 OSS/OSA 437 OSS/OSW	FLIP AFMAN 15-111	Circling min for RWY 15, 21 and 03. Straight-in approach min for RWY 15. Speci Observation Required
400ft	437 OSS/OSA 437 OSS/OSW	FLIP AFMAN 15-111	Straight-in approach min for RWY 03 and 21. Localizer approach min for RWY 15. Speci Observation Required
300ft	437 OSS/OSW	AFMAN 15-111 AFI 11-2C-17V3	Speci Observation Required Min required for touch and go training
200ft	437 OSS/OSA 437 OSS/OSW	FLIP AFMAN 15-111	ILS approach min RWY 15 and 33. Speci Observation Required

Table 8.2. Visibility.

Visibility	Unit	Reference	Action
3 SM	437 OSS/OSW	AFMAN 15-111	Speci Observation Required
2 SM	437 OSS/OSW	AFMAN 15-111	Speci Observation Required
1 ½ SM	437 OSS/OSW	AFMAN 15-111	Speci Observation Required
1 ¼ SM	437 OSS/OSW	AFMAN 15-111	Speci Observation Required
1 SM	437 OSS/OSA	FLIP	Circling min RWY 15, 33 and 03.
	437 OSS/OSW	AFMAN 15-111	NDB Straight-in approach min RWY 03 Speci Observation Required
¾ SM	437 OSS/OSA	FLIP	Straight-in approach min RWY 15.
	437 OSS/OSW	AFI 11-2C-17V3 AFMAN 15-111	Min required for touch and go training Speci Observation Required
½ SM	437 OSS/OSA	FLIP	ILS and localizer approach min RWY 15 and 33.
	437 OSS/OSW	AFMAN 15-111	TACAN Straight-in approach min RWY 15. Speci Observation Required
¼ SM	437 OSS/OSW	AFMAN 15-111	Speci Observation Required

NOTE: 60 When prevailing visibility is less than 1 SM, RVR readings will be used to determine aircraft operations limitations.

Table 8.3. Crosswind (Steady state or gusting).

Wind	Unit	Reference	Action
25kts	437 AW/CP	AFI 11-2C-17 V3	Limitation for touch and go training
30kts	437 AW/CP	TO 1C-17A-1	C-17 Threshold

Table 8.4. Wind (Steady state or gusting).

Wind	Unit	Reference	Action
25kts	MOC	AFOSH 91-100 LOI 15-1	Close hangar doors and secure work area No operations using high lift equipment No outdoor jacking (axle jacking permitted if acft nose is headed into wind) No flight control or petal door removal/replacement Tie down acft w/less than 80k lbs of fuel
50kts	MOC 437 OG	AFOSH 91-100 LOI 15-1 OPLAN 32-1 Attachment QRC to Basic Unit Supplement	Position flight control power switches to normal Raise Flaps Remove non-powered AGE from flight line Tie down fire bottles at nose of aircraft No ambulance service available Tie down transient aircraft Consider evacuation of C-17 aircraft
70kts	437 AW/CP 437 OG	TO 1C-17A-1	Evacuate C-17s to safe weather location
86kts	437 CES/CEX	New Requirement, will be added to OPLAN 32-1	Max operational design capability of base housing
106kts	437 CES/CEX	New Requirement, will be added to OPLAN 32-1	Max operational design capability of industrial buildings on CAFB

Table 8.5. Lightning.

Lightning	Unit	Reference	Action
Thunderstorm/Lightning weather watch issued (The potential for the development of thunderstorms/lightning within 5 nm of CAFB exists within the next 30 minutes)”	437 OG MOC 437 AW/CP	LOI 15-1	Production Supervisors should begin removing non-mission critical personnel from the flightline
Within 5 nm	437 OG MOC 437 AW/CP	AFOSH 91-66 LOI 15-1	Cease all aircraft servicing Production Supervisors will suspend all outside activities and have all personnel seek shelter Cease fuel operations

WILLIAM J. BENDER, Colonel, USAF
Commander, 437th Operations Group

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

DOD FLIP, *Department of Defense, Flight Information Publication*

AFPD 15-1, *Atmospheric and Space Environmental Support, Air Force Strategic Plan on Weather Reengineering*

AFI 10-229, *Responding to Severe Weather Events*

AFP 11-238, *Aircrew Quick Reference to the METAR/TAF Codes*

AFI 15-114, *Weather Support Evaluation*

AFI 15-118, *Requesting Specialized Weather Support*

AFI 13-213, *Airfield Management*

AFMAN 15-111, *Surface Weather Observations*

AFI 15-114, *Functional Resource Weather Technical Performance Evaluation*

AFMAN 15-124, *Meteorological Codes*

AFI 15-128 *Aerospace Weather Operations – Roles and Responsibilities*

AFMAN 15-129, *Aerospace Weather Operations Processes and Procedures*

AFMAN 15-135, *Combat Weather Team (CWT) Operations*

AMCPAM 15-1, *AMC Weather Support Guide*

AMCI 15-101, *AMC Weather Support Requirements*

T.O. 1C-17A-1, *Flight Manual*

T.O. 00-25-172, *Ground Servicing of Aircraft and Static Grounding/Bonding*

Abbreviations and Acronyms

AFI —Air Force Instruction

AFMAN —Air Force Manual

AFPD —Air Force Policy Directive

AFTOX —Air Force Toxic Chemical Dispersion Model

AFWA—Air Force Weather Agency (Offutt AFB NE)

AGL —Above Ground Level

ALSTG —Altimeter setting

AMD —Amendment

AOD —Air Order of the Day

AOR —Area of Responsibility

AR —Air Refueling

ASOS —Automated Surface Observation System

ATC —Air Traffic Control

AW —Air Wing

BECMG —Becoming

BKN —Broken Sky Condition

Bldg —Building

BWS —Base Weather Station

C —Degrees Celsius

CAFB —Charleston Air Force Base

CAT —Crisis Action Team

CLR —Clear

COR —Correction

CWT —Combat Weather Team

CWW —Continuous Weather Watch

DLT —Desired Lead Time

DST —Daylight Savings Time

DV —Distinguished Visitor

DZ —Drop Zone

EDT —Eastern Daylight Time

EST —Eastern Standard Time

EWO —Emergency War Order

F —Degrees Fahrenheit

FAA —Federal Aviation Administration

FAR —False Alarm Rate

FCST —Forecast

FLIP —Flight Information Publication

FM —From

FROPA —Frontal Passage

G —Gust

GTE —Greater Than or Equal to

Hg —Atomic Symbol for Mercury
HURCON —Hurricane Condition
HUREVAC —Hurricane Evacuation
ICAO —International Civil Aviation Organization
IFR —Instrument Flight Rules
L —Local
LAN —Local Area Network
LBC —Laser Beam Ceilometer
LDS —Lightning Detection System
LLWS —Low Level Wind Shear
LZ —Landing Zone
MEF —Mission Execution Forecast
METAR —Aviation Routine Weather Report
METWATCH —Meteorological Watch
MOA —Memorandum of Agreement
MSL —Mean Sea Level (height above the average sea level)
NEXRAD —Next Generation Weather Radar. (The NEXRAD is now termed the WSR-88D)
NHC —National Hurricane Center
NLDS —National Lightning Detection System
NM —Nautical Mile. (Unit for measuring distance)
NTFS —New Tactical Forecast System
NWS —National Weather Service (Department of Commerce)
OSS —Operations Support Squadron
OSW —Weather Flight in OSS
OVC —Overcast Sky Condition
OWS —Operational Weather Squadron
PA —Pressure Altitude
PIREP —Pilot Report
PMSV —Pilot-to-Metro Service
RCR —Runway Conditions Reading
RSC —Runway Surface Conditions Reading
RVR —Runway Visual Range

SA —Sand

SCT —Scattered Sky Condition

SIGMET —Significant Meteorological Advisory

SPECI —Special weather observation

TACC —Tanker Airlift Control Center

TAF —Terminal Aerodrome Forecast

TEMPO —Temporary Conditions

TS —Thunderstorm

UTC —Universal Time Coordinate

VC —Vicinity

WA —Weather Advisory

WF —Weather Flight

WSCONDS —Wind Shear Conditions

Wx —Weather

Z —Zulu Time

> —Greater than

< —Less than (below)

≤ —Less than or equal to

≥ —Greater than or equal to

Terms

Ceiling—the height of the first broken or overcast layer aloft.

Celsius—a metric unit used to measure temperature.

Desired Lead-time (DLT)—the amount of advance notice a supported agency desires prior to onset of a particular weather phenomenon.

Fahrenheit—an English Standard unit to measure temperature.

Forecast Weather Advisory (FWA)—a special notice provided to supported customers that alerts them of weather conditions that are forecast to occur and could affect their operations.

Local Observation—observation taken to report changes in conditions significant to local airfield operations, but does not meet special observation criteria. Local observations are not transmitted into the Automated Weather Network for use by other meteorological offices or command and control agencies.

Observed Weather Advisory (OWA)—a special notice provided to supported customers that alerts them of weather conditions that are occurring and could affect their operations. If disseminated as part of a regular observation, the first occurrence of the criteria will be sent with an urgent alert.

Pilot-to-Metro Service (PMSV)—a two-way radio service used for exchange of weather information

between the Base Weather Station (BWS) and aircraft.

Prevailing Visibility—the greatest distance that can be seen throughout at least half of the horizon circle (360 degree circle based at the horizon).

Severe Thunderstorm—a thunderstorm with winds 50 knots or greater and/or hail $\frac{3}{4}$ inch or greater.

Terminal—the area within a 5 nautical mile radius of the center of the runway.

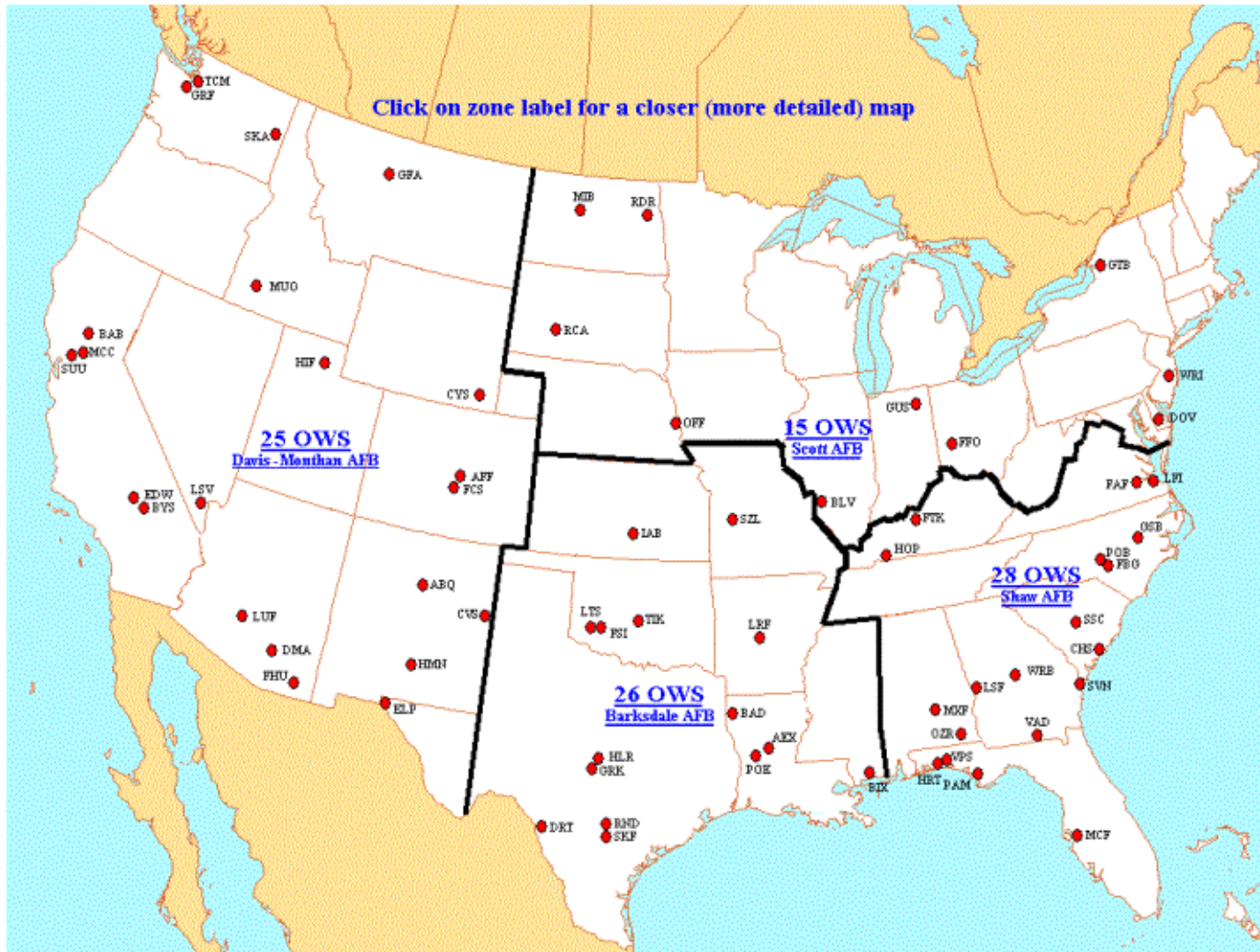
Weather Advisory—a special notice provided to a supported agency when an established weather condition that could affect its operation is occurring or is expected to occur.

Weather Warning—a special notice provided to a supported agency when an established weather condition of such intensity as to pose a hazard to property or life is occurring or is expected to occur. A weather warning is issued for situations that require the supported agency to take protective action.

Weather Watch—a weather watch is a special notice provided to customers to alert them that atmospheric conditions are favorable for tornadoes, severe thunderstorms, or winter storm conditions. A warning will follow a watch when and if severe weather activity appears imminent.

ZULU—a system of time, also known as Greenwich Mean Time or Universal Time Coordinate. This is the time measured on the prime meridian (0° longitude) in Greenwich, England.

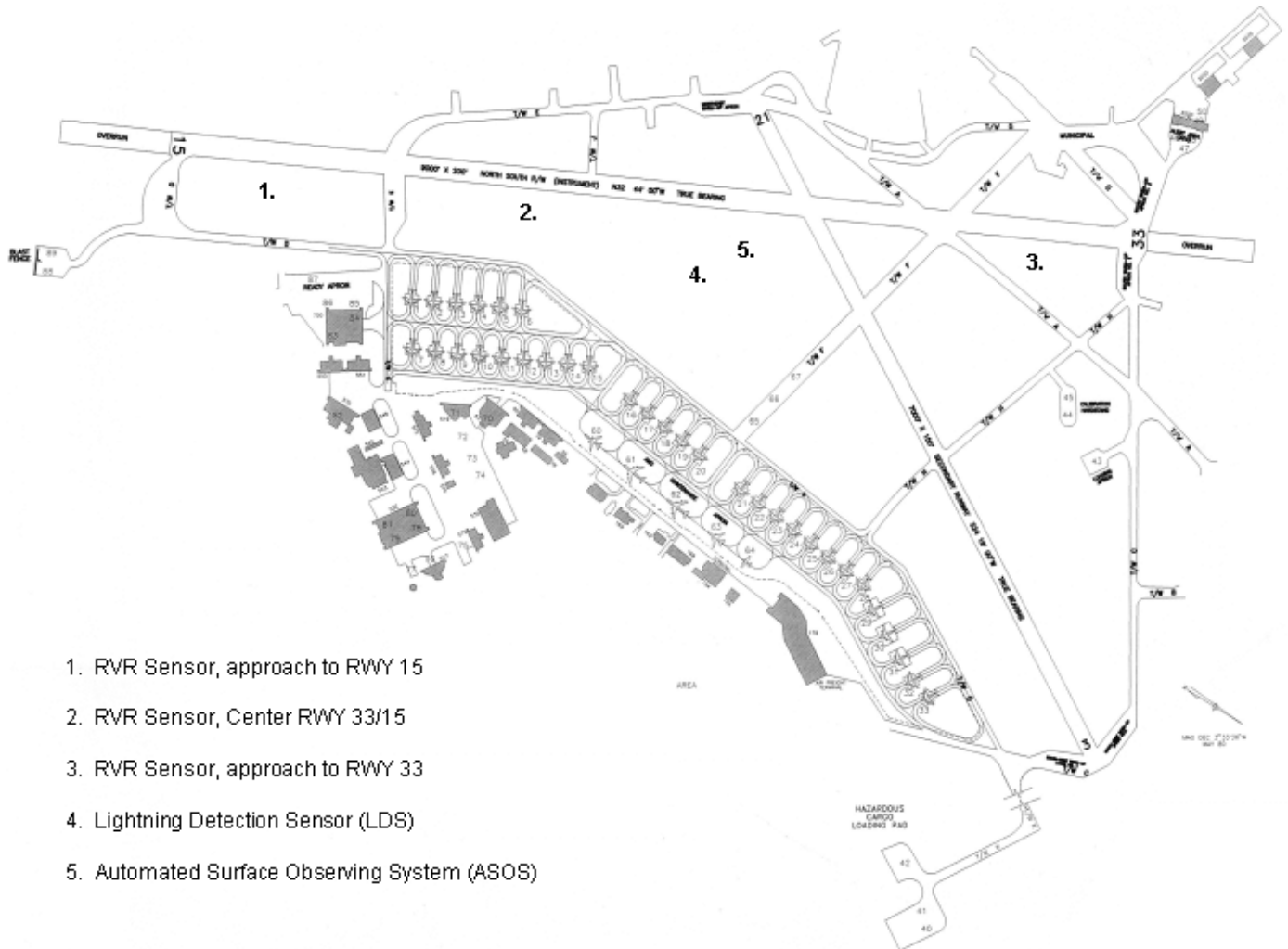
CONUS OPERATIONAL WEATHER SQUADRON'S AREAS OF RESPONSIBILITY



NOTE: 28TH OWS AOR covers the southeast U.S. This includes Florida, Alabama, Georgia, South Carolina, North Carolina, Tennessee, Virginia, and Kentucky.

Attachment 3

CHARLESTON AFB/INTERNATIONAL AIRPORT NWS WEATHER SENSOR LOCATIONS



1. RVR Sensor, approach to RWY 15
2. RVR Sensor, Center RWY 33/15
3. RVR Sensor, approach to RWY 33
4. Lightning Detection Sensor (LDS)
5. Automated Surface Observing System (ASOS)

Identifier	Weather Watch Criteria	Desired Lead Time
A	<u>Tornado</u>	4 hours
B	<u>Severe Thunderstorm (Winds \geq 50 Knots and/or Hail \geq ½ inch)</u>	4 hours
C	<u>Freezing Precipitation (Any Intensity)</u>	4 hours
D	Measurable Snowfall (Trace or Greater \leq 12 hours)	4 hours
E	Lightning and/or Thunderstorms (within 5 NM)	30 minutes
Weather Warning Criteria		
F	Tornado	5 minutes
G	Hail \geq ½ inch associated with Severe Thunderstorm	60 minutes
H	Winds \geq 50 Knots associated with Severe Thunderstorm	60 minutes
I	Winds \geq 35 Knots but $<$ 50 Kts associated with Moderate Thunderstorm	30 minutes
J	Winds \geq 50 Knots	60 minutes
K	Winds \geq 35 Knots but $<$ 50 Kts	30 minutes
L	Freezing Precipitation (Any Intensity)	60 minutes
M	Measurable Snowfall (Trace or Greater \leq 12 hours)	120 minutes
N	Lightning within 5 NM of Charleston AFB NOTE: This is the only warning issued locally by the 437 OSS/OSW	On Occurrence
Weather Advisory Criteria		
O	Low Level Wind Shear below 2000 feet AGL (not associated with thunderstorms)	On Occurrence
P	Moderate or greater turbulence below 10,000 feet AGL within 25 NM of Charleston AFB (Area weather advisory)	On Occurrence
Q	Moderate or greater icing below 10,000 feet AGL within 25 NM of Charleston AFB (Area weather advisory)	On Occurrence
R	<u>Surface Winds \geq 25 but $<$ 35 Knots associated with Thunderstorms</u>	30 minutes
S	<u>Surface Winds \geq 25 but $<$ 35 Knots</u>	30 minutes
T	<u>Temperature $<$ 25°F</u>	60 minutes
U	<u>Lightning within 10 NM of CAFB</u>	On Occurrence
V	Ceiling/visibility less than 200 feet/1/2 mile	On Occurrence
W	Ceiling/visibility less than 300 feet / 1 mile	On Occurrence
X	Ceiling/visibility less than 500 feet / 1 ½ mile	On Occurrence

Y	Engine induction icing potential for F-16	On Occurrence
Z	Crosswind \geq 30 knots not associated with thunderstorms occurring on runway XX/XX.	On Occurrence
A1	Crosswind \geq 25 knots but <30 knots not associated with thunderstorms occurring on runway XX/XX.	On Occurrence
B1	Tailwind greater 10 knots or greater with wet runway (Rwy 33)	On Occurrence
C1	Tailwind component 20 knots or greater with dry runway (Rwy 33)	On Occurrence
D1	Sustained surface winds greater than 25 knots over the SC coastal waters (Area weather advisory)	On Occurrence
E1	Sea state (wave heights) greater than 10 feet in SC coastal waters: (Area weather advisory)	On Occurrence

WEATHER NOTIFICATION MATRIX

NOTE: Refer to prior page to match notification identifier to correct weather watch, warning or advisory.

Disseminator	Notified Agency	WATCH					WARNING								ADVISORY																	
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A 1	B 1	C 1	D 1	E 1
Objective Wing Command Post <i>Note # 1 & # 2</i>	Recall Wx Forecaster	X	X	X	X	X	X	X	X	X	X	X	X	X							X											
	AW/CC	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X										
	OG/CC	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X										
	ATOC	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X		X											
	MOC <i>Note #5</i>	X	<u>X</u>	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X		X											
	Base Operations	X	<u>X</u>	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X									
	Flight Sims					X								X																		
	NORAD Det <i>Note# 3</i>	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X
	SOC Desks					X								X								X										
	JCS AMC CC	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X									
	JCS Msn CC	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X									
Base Ops	SPTG/CC	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X										
	SFS/CC	X	X	X	X	X	X	X	X	X	X	X	X	X																		
	MG/CC	X	X				X	X	X	X	X	X		X																		
	Fire Dept	X	X	X	X	X	X	X	X	X	X	X	X	X				X	X	X												
	CS		X			X			X		X			X																		
	Aero Club <i>Note # 4</i>	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X									

Disseminator	Notified Agency	WATCH					WARNING								ADVISORY																
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A 1	B 1	C 1	D 1
	Wg Safety Note # 3	X	X			X	X	X	X	X	X	X	X	X				X	X												
	TRANS	X	X	X	X	X	X	X	X	X	X	X	X	X				X	X												
	Crash Net						X	X	X	X	X	X			X																
Support Grp	SVS/CC Note# 4	X	X			X	X	X	X	X	X			X																	
	Aero Club	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X									

NOTES:

1. Command Post recalls the 437 OSS/OSW standby weather forecaster using the above matrix and established recall procedures during non-duty hours.
2. 28 OWS or 437 OSS/OSW notifies Command Post via telephone of all weather watches, warnings or advisories. Command Post then notifies all other agencies via telephone. NTFS Web Page is used to view actual text message.
3. The Objective Wing Command Post and Base Operations will notify the NORAD F-16 Detachment. Safety will be notified of watches, warnings and advisories during normal duty hours only.
4. The Aero Club will be contacted by the Support Group during duty hours, Monday – Friday (0730-1630) and by Base Operations during non-duty hours (1630 – 0730) and on weekends. The Support Group will contact services at all times.
5. MOC notifies LGRF via telephone hotline.

Attachment 5**NTFS WEATHER WATCH, WARNING, AND ADVISORY EXAMPLES****A5.1. Weather Watches.****A5.1.1. Tornado Watch.**

CHARLESTON AFB WEATHER WATCH MM-###

VALID: DD/HHMMZ (DD/HHMML) TO DD/HHMMZ (DD/HHMML)

THE POTENTIAL FOR THE DEVELOPMENT OF SEVERE THUNDERSTORMS THAT COULD PRODUCE TORNADOES EXISTS.

A5.1.2. Severe Thunderstorm Watch (winds GTE 50 knots and/or hail GTE 1/2 inch).

CHARLESTON AFB WEATHER WATCH MM-###

VALID: DD/HHMMZ (DD/HHMML) TO DD/HHMMZ (DD/HHMML)

THE POTENTIAL FOR THE DEVELOPMENT OF SEVERE THUNDERSTORMS THAT CONTAIN HAIL GTE ½ INCH DIAMETER, WINDS GTE 50KTS, HEAVY RAIN, AND DANGEROUS LIGHTNING EXISTS.

A5.1.3. Freezing Precipitation Watch.

CHARLESTON AFB WEATHER WATCH MM-###

VALID: DD/HHMMZ (DD/HHMML) TO DD/HHMMZ (DD/HHMML)

THE POTENTIAL FOR THE DEVELOPMENT OF FREEZING PRECIPITATION IN THE FORM OF XXXXXX EXISTS.

A5.1.4. Measurable Snowfall in ≤ 12 Hours Watch

CHARLESTON AFB WEATHER WATCH MM-###

VALID: DD/HHMMZ (DD/HHMML) TO DD/HHMMZ (DD/HHMML)

NOTE: THE POTENTIAL FOR THE DEVELOPMENT OF MEASUREABLE SNOWFALL AT CAFB EXISTS.

A5.1.5. Thunderstorm/Lightning within 5NM Watch.

CHARLESTON AFB WEATHER WATCH MM-###

VALID: DD/HHMMZ (DD/HHMML) TO DD/HHMMZ (DD/HHMML)

THE POTENTIAL FOR THE DEVELOPMENT OF THUNDERSTORMS/LIGHTNING
WITHIN 5NM OF CAFB EXISTS WITHIN THE NEXT 30 MINUTES. ** A WARNING
WILL BE ISSUED IF LIGHTNING IS OBSERVED W/IN 5NM OF CAFB. **;

A5.2. Weather Warnings.

A5.2.1. Tornado.

CHARLESTON AFB WEATHER WARNING MM-##

VALID: DD/HHMMZ (DD/HHMML) TO DD/HHMMZ (DD/HHMML)

A TORNADO WARNING HAS BEEN ISSUED FOR CAFB. SEEK SHELTER.

A5.2.2. Surface wind 50 knots or greater associated with severe thunderstorms

CHARLESTON AFB WEATHER WARNING MM-##

VALID: DD/HHMMZ (DD/HHMML) TO DD/HHMMZ (DD/HHMML)

SURFACE WINDS associated with severe thunderstorms WILL BE 50
kts or greater AT CAFB. WIND DIRECTION AND SPEED ARE AS FOLLOWS
XXX/XXGXXKTS.

A5.2.3. Hail ½ inch diameter or greater associated with severe thunderstorms.

CHARLESTON AFB WEATHER WARNING MM-##

VALID: DD/HHMMZ (DD/HHMML) TO DD/HHMMZ (DD/HHMML)

HAIL ½ INCH OR GREATER IN DIAMETER ASSOCIATED WITH A SEVERE
THUNDERSTORM WILL FALL AT CAFB. TAKE PROTECTIVE ACTIONS
IMMEDIATELY.

A5.2.4. Surface winds 35-49 knots associated with moderate thunderstorms

CHARLESTON AFB WEATHER WARNING MM-##

VALID: DD/HHMMZ (DD/HHMML) TO DD/HHMMZ (DD/HHMML)

SURFACE WINDS ASSOCIATED WITH MODERATE THUNDERSTORMS WILL BE BETWEEN 35 AND 49KTS AT CAFB. WIND DIRECTION AND SPEED ARE AS FOLLOWS XXX/XXGXXKTS.

A5.2.5. Surface wind 50 knots or greater.

CHARLESTON AFB WEATHER WARNING MM-##

VALID: DD/HHMMZ (DD/HHMML) TO DD/HHMMZ (DD/HHMML)

SURFACE WINDS WILL BE 50Kts or greater AT CAFB. WIND DIRECTION AND SPEED ARE AS FOLLOWS XXX/XXGXXKTS.

A5.2.6. Surface winds 35-49 knots.

CHARLESTON AFB WEATHER WARNING MM-##

VALID: DD/HHMMZ (DD/HHMML) TO DD/HHMMZ (DD/HHMML)

SURFACE WINDS WILL BE BETWEEN 35 AND 49KTS AT CAFB. WIND DIRECTION AND SPEED ARE AS FOLLOWS XXX/XXGXXKTS.

A5.2.7. Measurable Snowfall (Trace or Greater in LTE 12 hrs.)

CHARLESTON AFB WEATHER WARNING MM-##

VALID: DD/HHMMZ (DD/HHMML) TO DD/HHMMZ (DD/HHMML)

MEASURABLE SNOWFALL WILL OCCUR IN THE NEXT 12 HOURS. EXPECT XX INCHES ACCUMULATION.

A5.2.8. Freezing precipitation.

CHARLESTON AFB WEATHER WARNING MM-##

VALID: DD/HHMMZ (DD/HHMML) TO DD/HHMMZ (DD/HHMML)

FREEZING PRECIPITATION IN THE FORM OF XXXXXXXX WILL FALL AT CAFB.

A5.2.9. Thunderstorms/Lightning within 5NM

CHARLESTON AFB WEATHER WARNING MM-##

VALID: DD/HHMMZ (DD/HHMML) TO UFN

THUNDERSTORM/LIGHTNING HAS BEEN OBSERVED WITHIN 5NM OF CAFB.

**THIS WARNING WILL BE CANCELLED WHEN CONDITIONS NO LONGER
EXIST. **;

A5.3. Forecast Weather Advisories (require lead time).

A5.3.1. Surface winds 25-34 knots associated with thunderstorms

TERMINAL WEATHER ADVISORY MM-###

VALID DD/HHMMZ (DD/HHMML) TO DD/HHMMZ (DD/HHMML)

SURFACE WINDS XXX/XXGXXKTS associated with thunderstorms ARE
EXPECTED within 5 nm of CAFB.

A5.3.2. Surface winds 25-34 knots

TERMINAL WEATHER ADVISORY MM-###

VALID DD/HHMMZ (DD/HHMML) TO DD/HHMMZ (DD/HHMML)

SURFACE WINDS XXX/XXGXXKTS ARE EXPECTED within 5 nm of CAFB.

A5.3.3. Temperatures below 25°F

TERMINAL WEATHER ADVISORY MM-###

VALID DD/HHMMZ (DD/HHMML) TO DD/HHMMZ (DD/HHMML)

TEMPERATURES BELOW 25°F ARE EXPECTED WITHIN 5 NM OF CAFB.

A5.4. Observed Weather Advisories (require no lead time).

A5.4.1. Low-level wind shear (LLWS), surface to 2000 feet.

TERMINAL WEATHER ADVISORY MM-###
VALID DD/HHMMZ (DD/HHMML) TO DD/HHMMZ (DD/HHMML)
LOW LEVEL WIND SHEAR (LLWS), SURFACE TO 2000 FEET, IS OBSERVED
WITHIN 5NM OF CAFB. ** THIS ADVISORY WILL BE CANCELED WHEN
CONDITIONS NO LONGER EXIST. **;

A5.4.2. Moderate or greater turbulence surface to 10,000 feet.

AREA WEATHER ADVISORY MM-###
VALID DD/HHMMZ (DD/HHMML) TO DD/HHMMZ (DD/HHMML)
MODERATE OR GREATER TURBULENCE FROM SURFACE TO 10,000 FEET (AGL)
IS OBSERVED WITHIN 25 NM OF CAFB. ** THIS ADVISORY WILL BE CANCELED
WHEN CONDITIONS NO LONGER EXIST. **;

A5.4.3. Moderate or greater icing surface to 10,000 feet.

AREA WEATHER ADVISORY MM-###
VALID DD/HHMMZ (DD/HHMML) TO DD/HHMMZ (DD/HHMML)
MODERATE OR GREATER ICING FROM SURFACE TO 10,000 FEET (AGL) IS
OBSERVED WITHIN 25 NM OF CAFB. ** THIS ADVISORY WILL BE CANCELED
WHEN CONDITIONS NO LONGER EXIST. **;

A5.4.4. Thunderstorms/Lightning within 10NM.

AREA WEATHER ADVISORY MM-###
VALID DD/HHMMZ (DD/HHMML) TO DD/HHMMZ (DD/HHMML)
THUNDERSTORM/LIGHTNING HAS BEEN OBSERVED WITHIN 10NM OF CAFB.
**THIS ADVISORY WILL BE CANCELLED WHEN CONDITIONS NO LONGER
EXIST. **;

A5.4.5. Ceiling/visibility less than 200 feet / 1/2 mile.

TERMINAL WEATHER ADVISORY MM-###
VALID DD/HHMMZ (DD/HHMML) TO UFN
CEILING BELOW 200FT (AGL) AND/OR VISIBILITY BELOW 1/2 Mile OBSERVED
AT CAFB. ** THIS ADVISORY WILL BE CANCELLED WHEN CONDITIONS NO
LONGER EXIST.**;

A5.4.6. Ceiling/visibility less than 300 feet / 1 mile.

TERMINAL WEATHER ADVISORY MM-###
VALID DD/HHMMZ (DD/HHMML) TO UFN
CEILING BELOW 300FT (AGL) AND/OR VISIBILITY BELOW 1Mile OBSERVED AT
CAFB. ** THIS ADVISORY WILL BE CANCELLED WHEN CONDITIONS NO
LONGER EXIST.**;

A5.4.7. Ceiling/visibility less than 500 feet/ 1.5 miles.

TERMINAL WEATHER ADVISORY MM-###
VALID DD/HHMMZ (DD/HHMML) TO UFN
CEILING BELOW 500FT AND/OR VISIBILITY BELOW 1.5 Mile OBSERVED AT
CAFB. ** THIS ADVISORY WILL BE CANCELLED WHEN CONDITIONS NO LONGER
EXIST.**;

A5.4.8. Induction Icing for F-16 Aircraft.

TERMINAL WEATHER ADVISORY MM-###
VALID DD/HHMMZ (DD/HHMML) TO UFN
CONDITIONS FOR THE FORMATION OF INDUCTION ICING (ICE FOD) FOR F-16
AIRCRAFT OBSERVED AT CAFB. ** THIS ADVISORY WILL BE CANCELLED
WHEN CONDITIONS NO LONGER EXIST**.

A5.4.9. Crosswinds 30 knots or greater not associated with thunderstorms.

TERMINAL WEATHER ADVISORY MM-###
VALID DD/HHMMZ (DD/HHMML) TO UFN
CROSSWINDS 30 KNOTS OR GREATER NOT ASSOCIATED WITH
THUNDERSTORMS ARE OCCURING ON RUNWAY XX/XX AT CAFB. ** THIS
ADVISORY WILL BE CANCELLED WHEN CONDITIONS NO LONGER EXIST**.

A5.4.10. Crosswinds 25 knots but less than 30 knots not associated with thunderstorms.

TERMINAL WEATHER ADVISORY MM-###
VALID DD/HHMMZ (DD/HHMML) TO UFN
CROSSWINDS OF 25 KNOTS BUT LESS THAN 30 KNOTS NOT ASSOCIATED WITH
THUNDERSTORMS ARE OCCURING ON RUNWAY XX/XX AT CAFB. ** THIS
ADVISORY WILL BE CANCELLED WHEN CONDITIONS NO LONGER EXIST**.

A5.4.11. Tailwind 20 knots or greater with dry runway.

TERMINAL WEATHER ADVISORY MM-###
VALID DD/HHMMZ (DD/HHMML) TO UFN
TAILWINDS 20 KNOTS or greater ON DRY RUNWAY xx OBSERVED AT CAFB.
** THIS ADVISORY WILL BE CANCELLED WHEN CONDITIONS NO LONGER
EXIST. **;

A5.4.12. Tailwind 10 knots or greater with wet runway.

TERMINAL WEATHER ADVISORY MM-###
VALID DD/HHMMZ (DD/HHMML) TO UFN
TAILWIND 10 KNOTS OR GREATER ON WET RUNWAY XX OBSERVED AT CAFB.
** THIS ADVISORY WILL BE CANCELLED WHEN CONDITIONS NO LONGER
EXIST. **;

A5.4.13. Sustained surface winds greater than 25KTS over SC coastal waters.

AREA WEATHER ADVISORY MM-###

VALID DD/HHMMZ (DD/HHMML) TO UFN

SUSTAINED SURFACE WINDS GREATER THAN 25KTS OBSERVED OVER
SC COASTAL WATERS. ** THIS ADVISORY WILL BE CANCELED WHEN
CONDITIONS NO LONGER EXIST. **;

A5.4.14. Sea state (wave heights) greater than 10 feet.

AREA WEATHER ADVISORY MM-###

VALID DD/HHMMZ (DD/HHMML) TO UFN

SEA STATE (WAVE HEIGHTS) GREATER THAN 10 FEET OBSERVED OVER
SC COASTAL WATERS. ** THIS ADVISORY WILL BE CANCELED WHEN

Attachment 6

WEATHER REQUIREMENTS AND MISSIONS OF SUPPORTED AGENCIES

Supported Agency	Mission	Weather Requirement
AW/CC	Command Base	Notification of all weather watches, warnings, and advisories affecting AW operations*
OG/CC	Command Operations Group	Notification of all weather watches, warnings, and advisories affecting OG operations*
ATOC	Track marshalling/loading of cargo	Notification of all weather watches, warnings, and advisories affecting ATOC operations*
MOCC	Track Maintenance of all assigned aircraft	Notification of weather watches, warnings and advisories affecting MACC operations*
Flight Sims	Conduct simulator training	Notification of Lightning watches and warnings*
NORAD Det	Provide alert F-16 aircraft for NORAD mission	Notification of watches and warning affecting F-16 operations*
SOC Desks	Provide Alert Special Operations support	Notification of all lightning watches and warnings*
JCS AMC CC	Track status of AMC aircraft assigned to support JCS missions	Notification of all weather watches, warnings, and advisories affecting ability to launch JCS assigned aircraft*
JCS Msn CC	Track status of CAFB aircraft assigned to support JCS missions	Notification of all weather watches, warnings, and advisories affecting ability to launch JCS assigned aircraft*
SPTG/CC	Command Support Group	Notification of all weather watches, warnings, and advisories affecting SPTG operations*
SFS/CC	Command Security Forces Squadron	Notification of all weather watches, warnings, and advisories affecting SFS operations*
MG/CC	Command Medical Group	Notification of all weather watches, warnings, and advisories affecting MG operations*
Fire Dept	Provide Fire Fighting support to CAFB	Notification of all weather watches, warnings, and advisories affecting firefighting operations*

Supported Agency	Mission	Weather Requirement
CS	Provide all aspects of communications and computer support to CAFB	Notification of all weather watches, warnings, and advisories affecting CS operations*
Aero Club	Provide an avenue for CAFB personnel to pursue aviation interests	Notification of all weather watches, warnings, and advisories affecting Aero Club flight operations*
Wing Safety	Manage Wing Safety program	Notification of all weather watches, warnings, and advisories affecting safety of operations at CAFB*
Transportation	Provide all transportation services required at CAFB	Notification of all weather watches, warnings, and advisories affecting transportation operations *
SVS/CC	Command Services Squadron	Notification of all weather watches, warnings, and advisories affecting services on CAFB*
Base Operations	Manage the airfield and relay weather information via secondary crash net	Notification of all weather watches, warnings, and advisories affecting the airfield or required to be relayed via secondary crash net.*

NOTE: * See [Attachment 4](#) for specific weather watch, warning and advisory notification criteria.

Attachment 7

WEAPONS SYSTEMS SUPPORTED AND WEATHER SENSITIVITIES

A7.1. Impact of Weather on Supported Flying Units. Current and forecasted weather conditions dictate flying restrictions. The C-17 is not stopped by much when it comes to weather. All Air Force aircraft are prohibited to fly in severe icing and turbulence, thunderstorms, and the presence of volcanic ash. It should also be noted that all Air Force aircraft are not prohibited from operating in freezing rain except the C-12, and there is also no prohibition from operating in freezing drizzle. Prohibition is, instead based on the intensity of icing forecasted and/or resulting from the freezing precipitation. Other specific weather phenomena affecting aircraft operations will be explained in detail for Charleston AFB operations and Auxiliary Fields.

A7.2. C-17 Globemaster III. Boeing Corporation manufactures the C-17. It is an Inter/Intra-Theater Airlift cargo plane. It has a cruising speed of .74 Mach and a range of 4500NM. The average cruise altitude is between 31-35,000ft with a maximum cruising altitude of 45,000ft. Maximum crosswinds are 30KT. It possesses anti-icing equipment and can operate in areas up to moderate icing. It may also operate in areas of turbulence as high as moderate. The C-17 must avoid thunderstorms by 10NM below FL230, and by 20NM at and above FL230. The plane possesses weather depiction radar and can refuel. Minimum visibility requirements are 1NM for refueling. The C-17 has the capability to land on a 3000ft runway by performing a SAAF approach (Short Austere Airfield).

A7.3. Aircraft Restrictions Due to Weather. The following table ([Table A7.1.](#)) is a list of specific weather criteria that affects the C-17.

Table A7.1. C-17 mission limiting weather (based on limitations of aircraft).

Aircraft Type/Mission Type	Limitation	Comments
Normal Landing CAT II (Rwy 15) Landing Mins at CHS Ref: FLIP	Visibility RVR	Cannot land with < 1/2SM Cannot land with < 1200 RVR
Take-off at CHS: AFI11-2C-17V3	RVR	Normally, cannot take-off with <1600 RVR and an alternate is required for take-off. Exception: Rwy 15/33 can take-off if approach end RVR > 1200 and departure end RVR > 1000 and an alternate is required. Pilot will specify requirements for take-off alternate.*
Destination Ceiling/Visibility Requirements AFI11-202V3	3000/3	Alternate required - must be 1000/2*

Aircraft Type/Mission Type	Limitation	Comments
All AF Aircraft: Overseas destination AFI11-202V3	N/A	Alternate required - must be 1000/2*
Icing AFI11-2C-17V3	Intensity	Should not cruise in moderate or greater (will avoid once encountered) Will not fly into forecasted or reported severe
Turbulence AFI11-2C-17V3	Intensity	Should not cruise in moderate or greater (will avoid once encountered) Will not fly in forecasted or reported severe
Thunderstorms AFI11-2C-17V3	Avoidance parameters	Above FL230: 20NM separation Below FL230: 10NM separation
Wind Ref: TO 1C-17A-1	Evacuation Intensity	Evacuate to safe weather location if winds in excess of 70KT expected.
Crosswinds Ref: TO 1C-17A-1	Intensity	Cannot exceed 30KT real world Cannot exceed 25KT for touch and go training mission
Tailwind Ref: TO 1C-17A-1	Intensity	Can't land with a 10kt or greater tailwind.
Headwind Ref: TO 1C-17A-1 Ref: TO 1C-17A-1	Intensity	Can't land with a 40kt or greater headwind.

NOTE: * The aircraft commander may request more than one alternate that qualifies. This may be due to mission requirements, weather, or emergency procedures. This should be kept in mind when the pilot requests weather.

Attachment 8

MISSION LIMITING TERRESTRIAL AND SPACE WEATHER PARAMETERS

A8.1. Impact of Weather on C-17 Missions. The C-17 flies several missions all of which are impacted to some extent by weather. The following table ([Table A8.1.](#)) is a list of specific weather criteria that affects the C-17 missions flown from Charleston AFB.

Table A8.1. C-17 Mission limiting Weather (based on tactics).

Mission	Limitation	Comments
Touch & Go Training AFI11-2C-17V3	Ceiling / Visibility	Cannot proceed with <300/ 3/4
North Field: Training Sorties AFI11-2C-17V3	Ceiling/Vis	1500/3 due to no instrument approaches into North Field
Air refueling AFI11-2C-17V3	Visibility	Single receiver cannot refuel with <1NM For formations of two or more tanker/receivers; cannot refuel with < 2NM
Air refueling AFI11-2C-17V3	Thunderstorms	Cannot refuel with thunderstorms
Air refueling AFI11-2C-17V3	Turbulence	Cannot refuel in mdt or greater turb. & will not launch with severe turb. fcted
Air refueling AFI11-2C-17V3	Icing	Cannot refuel with moderate or greater
Airdrop: Unilateral (Air Force) training AFI11-2C-17V3	Ceiling/Visibility	Cannot drop with <300/1/2
Airdrop: Joint Operations AFI11-2C-17V3	Ceiling/Visibility	Weather minimums are at the discretion of the using agency
Personnel Airdrops: AF Static Line (Land) AFI13-217	Wind (including gusts)	Cannot drop with > 13KT**

Mission	Limitation	Comments
Personnel Airdrops: AF Static Line (Water) AFI13-217	Wind (including gusts)	Cannot drop with >25KT**
Personnel Airdrops above 3000ft AGL: (Land) i.e.: HALO/ HAHO AFI13-217	Wind (including gusts)	Cannot drop with >13KT**
Personnel Airdrops above 3000ft AGL: (Water) AFI13-217	Wind (including gusts)	Cannot drop with >25KT**
Satellite Communications	Limited by changing conditions in the ionosphere	May not be able communicate when ionospheric conditions are forecasted to be marginal or red along route of flight.
HF Communications	Limited by changing conditions in the ionosphere	May not be able communicate when ionospheric conditions are forecasted to be marginal or red along route of flight.

NOTE: ** These can be raised or lowered if using different types of chutes or at the discretion of the user.

Attachment 9

EQUIPMENT AND COMMUNICATIONS AND RESTORAL PRIORITIES

EQUIPMENT	SIGNIFICANT OUTAGE	MINIMAL OUTAGE	RESPONSE TIME
AMIS/VSAT LOOP 8 CLT 149 DROP A	Always	Never	24 hrs W/I WEEK WEEKENDS/HOLIDAY NEXT DUTY DAY
COMM Problems (LAN, Phone, Pagers, Cell Phones)	Always	Never	3 hours
PMSV	Always	Never	3 hours
Lightning Detection System (LDS)	WSR-88D outage also exists	WSR-88D operational	3 hours
RVR	Tower & Command Post RVR not operational	Tower and/or Command Post RVR Operational	24 hours
ASOS	Always	Never	3 hours
WSR-88D	Always	Never	3 hours
Copier Mdl 2050 MINOLTA/CS Pro	Never	Always	N/A
CMP/ NWS/ 2 nd ary CRASH Hotlines	Telephone lines are also inop	Always	3 hours
CATV Weather Channel	Never	Always	3 hours
C2IPS	Never	Never	N/A
Air Conditioning and Heating & Electrical Problems	Sometimes	Never	N/A
HURRTRAK	HURCON \leq 4 WEB/LAN OUTAGE	No Tropical Development or Not tropical Season	24hours
Tactical VSAT	When tasked by MAJCOM to deploy asset	Always	N/A

EQUIPMENT	SIGNIFICANT OUTAGE	MINIMAL OUTAGE	RESPONSE TIME
TMQ-53, Tactical Meteorological Observing System	When tasked by MAJCOM to deploy asset	Always	N/A
MOS Kit, Manual Observing Kit	When tasked by MAJCOM to deploy asset	Always	N/A
New Tactical Forecast System (NTFS) Laptop Computers	When tasked by MAJCOM to deploy asset	Always	N/A
TMQ-36 , Tactical Wind Measuring Set	When tasked by MAJCOM to deploy asset	Always	N/A
ALDEN 9315 TRT Facsimile Receiver	When tasked by MAJCOM to deploy asset	Always	N/A